

BIGGLE BERRY BOOK

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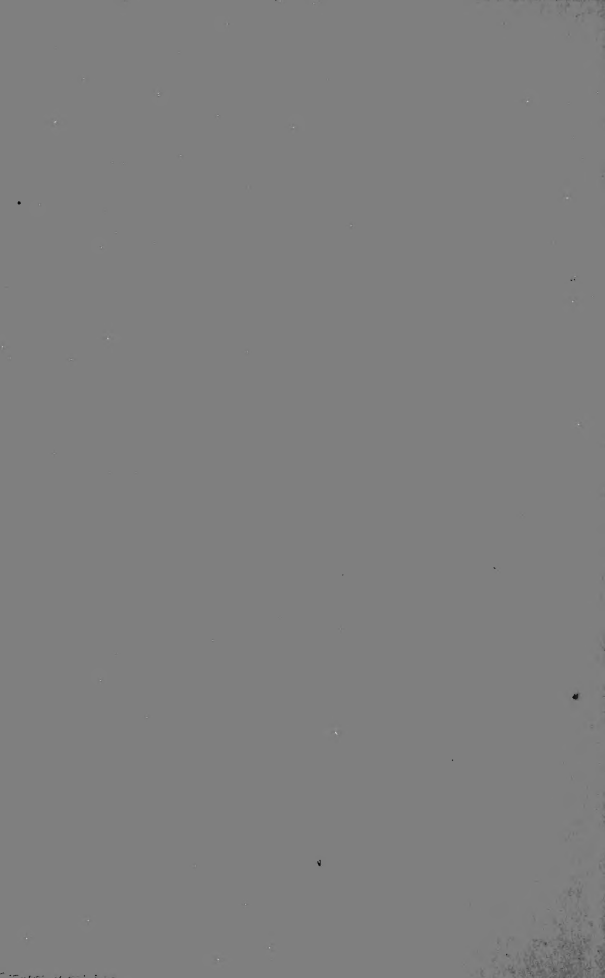
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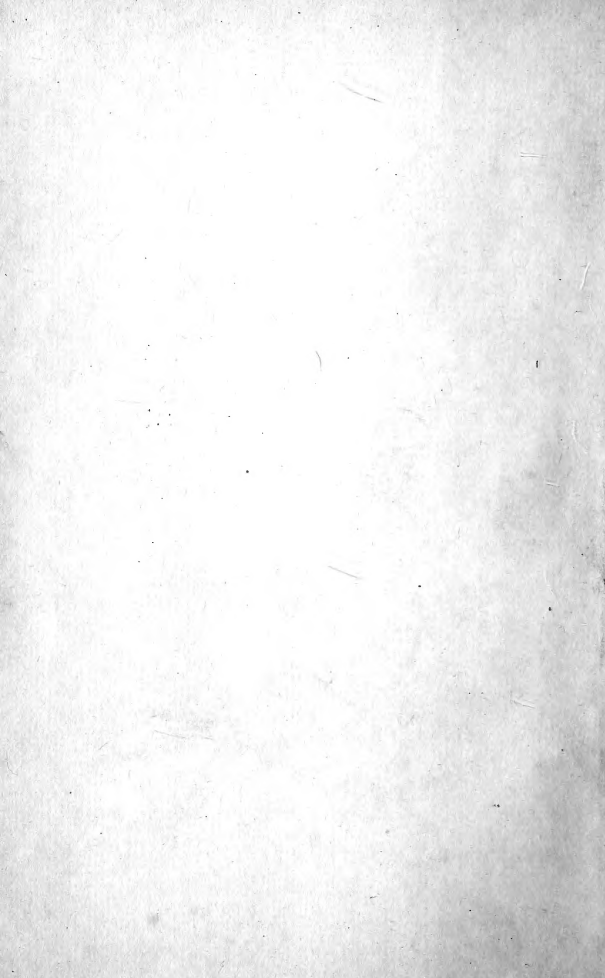
1894

UNITED STATES OF AMERICA.









BIGGLE BERRY BOOK



A CONDENSED TREATISE

ON THE

CULTURE OF BERRIES

BY JACOB BIGGLE

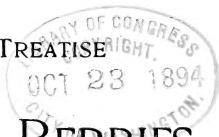
WITH LEAVES FROM THE EXPERIENCE OF MANY PRACTICAL
BERRY GROWERS IN ALL PARTS OF THE
UNITED STATES

ILLUSTRATED

"Doubtless God could have made a better fruit than the strawberry,
but He never did"

PHILADELPHIA
WILMER ATKINSON CO.

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A BOUQUET OF GANDYS

(WITH HARRIET'S COMPLIMENTS)

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CHAPTER I.

THE BEGINNING.

“ Let your light shine.”

I HOLD that it is right to tell what we know in any line of farming, if our knowledge be of value to others and will help them to success. Now, I have been engaged, more or less, in strawberry culture for over a dozen years, and have in that time learned a little, and this little I am ready to communicate to my neighbors and even to impart to a wider circle, wide enough to take in the whole Farm Journal family and the entire remnant of the population of the country.



The only trouble is I do not know it all ; and yet it may be best that I do not, since I have discovered that those folks who know it all, are apt to get behind the lighthouse and are left in the dark themselves.

Confessed, I do not know it all ; yet Harriet knows some and Tim knows a heap ; together we are so far from a universal knowing that I have not hesitated, in preparing this book for publication, to call on a large number of bright, experienced, enterprising, fearless, obliging men, to tell what they have learned about berries and how to grow them. Nobly they have responded to my call, and the pages to follow will bear witness to their wit, their knowledge, their liberality, their thoroughness and the kindness and good will that

animates their hearts. This book could stand alone upon genuine merit as a treatise on small fruits without a line from my own pen, so rare and valuable are the contributions from those fine gentlemen who have given so freely of their knowledge and experience on this subject.

It will be seen, therefore, that many pages of my book will contain explicit information furnished by berry experts, and that this knowledge is gathered from all parts of the country, in all latitudes and longitudes, and from practical men who know what they are telling about ; and it is obvious that a summary of the experience thus brought together must be of vastly more value to the one who would educate himself in this line of horticultural work, than the opinions and writings of any one man, whose operations and observations are mostly confined to one farm or one neighborhood, no matter how smart that man may be.

One of the features of this work which I thought would commend itself to the public is the picture gallery, containing the likenesses of many skilled berry growers, most of whom are contributors, who have had marked success in their calling and who are honorably known the country over.

Certainly it will gratify many readers to look into their honest faces, to come to know them better, and thus appreciate them more.

Another feature is the showing of the berries in natural colors, which has not, to my knowledge, ever been attempted, or at least accomplished before. It cost time, money and infinite pains to procure accurate paintings of the fruits, and to transfer them to the pages of the book, each specimen being printed in eight

separate colors in order to produce the required truthfulness of shading. Of course most of the credit of success in this line must accrue to the publishers, and to them I freely give it. My part was to point the way and to give what aid I could in obtaining correct specimens of the berries during the fruiting season.

When the Editor of Farm Journal asked me to write a berry book, I declined, for I did not think I could do it, and I did not want to engage in the work, having more to do than I cared for already; and Harriet thought I had better not undertake the task, and Tim thought I would be foolish to bother with it; but that persistent Editor took no notice of my refusal, said he would help me, said, "Oh, fie, go ahead!" said something about hiding our light under a bushel, and what a grand thing the book would be; and so here I am engaged in the opening chapter and already filled with enthusiasm in the work and hoping to soon fitly accomplish a useful and worthy task.



CHAPTER II.

THE STRAWBERRY.

A PLEA.

When the culture of strawberries is commenced in a small way and extended from year to year, there need be no failures, for no garden or farm crop is more reliable in annual returns.—TIM.

BEING the first fruit to ripen the strawberry comes to the table when the appetite is capricious, as a welcome visitor. So beautiful in form, color and fragrance, it is among fruits what the rose is to flowers. In flavor so delicious, in healthfulness so beneficial that invalids gain strength while its season lasts. Strawberries fully ripe and freshly picked from the vines may be eaten at every meal, in saucers heaped high like pyramids, and nourish the most delicate stomachs.

The charms of the strawberry do not all end in the eating of it. No fruit is so soon produced after being planted. It affords employment—pleasant, easy and profitable for poor men with little land; for old men with little physical strength; for women, boys and girls who love to till the soil and delve in mother earth. So certain to grow, equally sure to sell at paying prices. It is so suited to all soils, and its culture is so soon and so bountifully rewarded by big berries, that the exercise and joy of success bring with it health and a good conscience.

Note also the labor which is saved to the family

indoors. No lard, tough beef, or dried apple pies to be manipulated and toasted in mid-summer over red-hot ranges. For the strawberry comes from the garden to the table in the most tempting and presentable shape, none of the newer and sweeter varieties requiring sugar or any other condiments, to fit them to grace the table of a king.

In the list of enthusiastic gentlemen who were asked for pointers in strawberry growing is J. H. Hale, of the State of Connecticut, and the United States of America, for he belongs to the latter; and here is one of the things he wrote: "No man should fool himself into telling his wife that he hasn't time to bother with such small trash as berries, but will buy all the family wants; he may not be much of a liar, but those of us who have so often heard that old chestnut about buying all the berries the family wants, know that man is way off. He never did and never will buy one-tenth part as many berries as the family will consume, if he will give them all they can wallow in right fresh from the home garden."



J. H. HALE

Hale is right; few in the country will buy berries when berries are ripe, and after they are gone, of course they will not buy.

The only just and true way for an honorable and manly man is to grow them, and let everybody about the place have all they can eat.

Down in Massachusetts, in the town of Springfield, lives a good gentleman by the name of Adams—J. W. Adams. Along with Hale and a host of other

estimable persons, his portrait will be found in this book, and his is such a face as would grace any gallery, however select. And he has joined Hale in a plea for the strawberry in every garden, submitting an argument that is irresistible. He says, "How many berries will the average farmer buy? Will it be one quart a week?" A housewife was confronted with the promise of her well-to-do husband, that instead of growing them they would purchase of James Harvey all she wanted. At the end of the season she said, "How many berries do you suppose we bought? Not a single quart."

This forcible question and answer is altogether too common. Farmers who can grow with very little expense, this most healthful and delicious of all fruits, deny to themselves and their families the greatest table luxury which Providence has bestowed upon people of temperate climates, when a single square rod of ground might yield them more intrinsic value than an acre in many other products.



J. W. ADAMS

Strawberry growing is to many people a great mystery, as the writer has had impressed upon him by numberless inquiries, both verbal and written. There is no fruit crop so immediately productive, none which attaches to itself so much enthusiasm and quick reward for labor expended. They flourish to a degree in all soils and in all temperate climates. The number of varieties is now unlimited, and suited to all tastes. When the Wilson's Albany was the only berry grown, on account of its acidity many people discarded the strawberry from their tables, who, now that sweeter

and better flavored berries have superseded it, use them at every meal.

One large farmer in the country consigns to his own table a peck a day ; others provide a quart for each person, and dispense almost wholly with meat so long as this berry can be had in good condition. A very intelligent young lady living opposite, who has travelled the world over, enjoys life just as long as the supply of strawberries continues ; but at other seasons she is more or less of an invalid. And yet there are too many who regard them as mere luxuries, and refer you to pork and potatoes for nourishment and substantial sustenance for body and mind.

I sent far and wide the inquiry, "Ought everybody have all the strawberries they want?" and of many responses I beg to quote a few :

Certainly they ought, and every one with a twenty foot lot
A. W. SLAYMAKER should grow his own strawberries. There
are health and amusement in it as well as profit. Del.

Yes, sir, most emphatically. Every-
body ought to have all the strawberries
they want. If they do not care to grow
them they ought to be in some business
so that they can afford to buy them
quart after quart, morning, noon and
A. I. ROOT night. Not only because
they give enjoyment but because they
are the cheapest, best and most natural
medicine to tone up the system that has
ever been invented. They are both vict-
uals and drink. The man who cannot afford to give up his beer,
tea and coffee, yes, and tobacco too, when strawberries are
plenty and cheap, is a man to be pitied. O.



A. I. ROOT

GEO. J. KELLOGG Yes, and some for the neighbors that have
none. Wis.

No one should be without strawberries; they are the first native fruit of the season. Every farmer should have a bed and
E. W. REID let his boy live on the fat of the land. He would not care to go to town after the day's work for a frolic if he could get all the strawberries and Jersey cream he wanted. O.

A. P. SAMPSON Yes, yes, yes, yes, yes, yes, yes! Mass.

Yes, by all means, and there is no excuse for not, as any one
H. S. TIMBRELL having a small plot of ground can grow them, and they are so cheap in the market that all others can buy them.
 N. Y.

All they can possibly eat means health to many a poor mortal with weak digestion. In all the world there is not a better tonic,
EUGENE WILLETT to say nothing of the comfort of strawberries three times a day on the table, and filling up twice or three times between meals from your own little patch. N. Y.

Yes, decidedly, and the man in the country who has a piece of land, either owned or hired, and does not have this delightful
T. J. DWYER fruit from his own garden on his table three times a day for four weeks at least is behind the age; is doing an injury to himself and to those whom God has placed under his care.
 N. Y.

J. W. ADAMS The progress of human events seems to be tending in that fraternal direction. Mass.

Better go without coffee or tea than to go without strawberries; eat them three times a day and feel happy and healthy.
WILLIAM HOOVER Col.

J. H. HALE This is evident, do not talk about it, just act.
 Conn.

CHAPTER III.

WHAT AN ACRE MAY DO.

Anything you tell it.—TIM.

NOVICES in berry culture will be surprised to know that more bushels of strawberries can be grown on an acre than of wheat or corn and of potatoes, but such is the fact, as testified to by many experienced growers.

A. M. PURDY One hundred and fifty to 200 bushels, but these were exceptional cases. Ordinarily 75 to 100 bushels. N. Y.

G. S. BUTLER From 100 to nearly 200 bushels. Have known of parties growing 250 bushels. Conn.

I have never kept an exact account of an acre of strawberries, but we have fruited them in a small way at the rate of 650 per T. J. DWYER acre, and my next door neighbor, Mr. Crissey, fruited a large bed this year which yielded at the rate of 700 bushels per acre, the season being dry and unfavorable for a yield. N. Y.

W. W. FARNSWORTH Our usual crop is from 100 to 120 bushels. O.

W. C. WILSON Dare not tell. Would be posted as a liar from Maine to Texas if I should tell of my biggest crop. Ill.

M. A. THAYER On the Thayer fruit farms we have raised 225 bushels to the acre. Wis.

GEO. F. BEEDE Over 300 bushels. Small plots at the rate of 500 bushels. N. H.

J. W. ADAMS The only lot we measured and kept any count of is the Crescent, at the rate of 10,600 boxes, or quarts, to the acre. Mass.

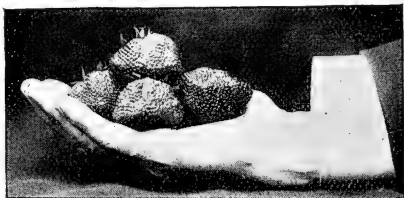
GEO. J. KELLOGG We have fruited small plantations that have grown at the rate of 700 bushels. Wis.

EDWARD T. INGRAM We picked from our best one-quarter acre 111 bushels and 19 quarts. Pa.

One thousand to 17,000 quarts to the acre at picking. The DR. J. STAYMAN varieties that will not yield from 5,000 to 10,000 quarts to the acre in the average season are not worth growing. Kan.

JOHN LITTLE Two hundred and fifty bushels, sometimes less. Can.

I myself have grown strawberries at the rate of 200 bushels per acre, but one year I expected 300 and got about 50. In each case Haverland and Bubach. Robert H. Gillin, a veteran grower of my own state, sold from one matted row of Gandy, 323 feet long and 3 feet 4 inches wide, in 1892, \$40 worth of fruit; the proceeds of the same row in 1893 were \$50; in 1894, \$45, which is at the average rate of \$1,340 per acre per year. The berries were very large and fine and sold at a high price per quart—from 15 to 25 cents.



TAKE ONE!

W. D. BARNES Any good corn land will grow strawberries.
N. Y.

Most any good rich soil will grow strawberries, and sandy
CHARLES WRIGHT soil with slope toward the south will give
the earliest berries, whilst a heavy clay loam produces the largest
crop. Del.

H. S. TIMBRELL For a good medium crop, a level exposure
with good clay sub-soil will give best results. N. Y.

GEO. Q. DOW I do not think the soil or location makes much
difference if properly prepared and made fertile. N. H.

The strawberry will grow in any soil containing sufficient
EUGENE WILLETT fertility and from which water can be kept
by surface or underdrainage, the latter preferred if not naturally
dry. N. Y.

BENJ. M. SMITH Any kind where you can grow a good crop of
corn or vegetables. Mass.

G. S. BUTLER The best soil you have and located near a good
market, if grown for commercial purposes. Conn.

W. W. FARNSWORTH Any location that is as free as possible
from spring frosts and where the ground does not wash. O.

Soil that has considerable sand in it is best. However, any
good soil that does not bake and become lumpy will answer.
T. J. DWYER The finest and largest fruit is grown on heavy,
black loose land. Land that inclines to the south is of course
best for the early varieties, but for all other purposes we would
prefer the plot as level as possible. N. Y.

A close, compact, retentive loam with little or no free sand
H. E. MCKAY is best for solidity, strong color and setting
qualities. Miss.

EDWARD W. CONE Clay will answer if well drained. Wis.

J. G. BUCHANAN High land and clay loam. O.

E. M. BUECHLY We like a clay loam well fertilized and
slightly rolling. O.

JOHN LITTLE Rich loam ; south for early, north for late.
Can.

A deep, rich, moist, sandy loam soil, well underdrained, is
J. H. HALE best for most varieties although a few do better
in light, sandy soil, while some others require a stiff clay.

Conn.

SUMMARY REMARKS.

The question is answered so well in the above that I can add nothing of value. The point is brought out by several correspondents that for early berries a southern slope and sandy soil are most favorable; while for late berries clayey loam is better with a shady exposure; also that certain varieties do better on some soils than others.



CHAPTER V

MANURING AND PREPARING THE GROUND.

Prepare thoroughly and manure heavily.—TIM.

WHAT previous preparation should the ground have when strawberries are to be planted and how best to fertilize? On these two important questions I bring in abundant evidence from most trustworthy witnesses, enough, I should say, to settle them in the minds of all who do not now have some special contrary knowledge of their own, inaccessible to the majority of mortals. The first witness is J. H. Hale.

A well rotted clover sod that has been deeply plowed or spaded, with the addition of subsoiling if it has a stiff bottom. After plowing, a heavy top dressing of well rotted stable manure supplemented with potash in some form, or say 3,000 pounds of J. H. HALE fine ground raw bone, 500 pounds of muriate of potash, and 200 pounds each of tankage and nitrate of soda per acre, all evenly broadcasted, followed by a thorough pulverization of the soil by harrowing and reharrowing about four times as much as the average plowman will think he ought to Conn

A one year's clover sod well manured and planted to potatoes, and well tilled one year, makes one of the best preparations W. W. FARNSWORTH for strawberries; but any other plan that will make the soil reasonably rich and in good tilth, and free from weed seeds, will answer. O.

W C. WILSON My plan is to manure with barn-yard manure, a year before, and grow a crop of potatoes. Ill.

WM. D. BARNES Strawberries should follow a hoed crop.

N. Y.

Plant on land that has had clover and one corn crop grown. After the clover manure can be best applied in the shape of bone A W. SLAYMAKER and potash, as they will not bring such a crop of weeds. Del.

A potato field covered with manure soon after the potatoes are dug and plowed at once, having the furrow set on edge. If E. W. REID clay soil, plow again in early spring, as it will run together; but if sandy, work with cultivator and apply about fifteen to twenty tons per acre of good manure before the cultivator is put to work. O.

Our ground planted this spring was treated a year ago last winter to about one carload of manure to the acre. About June 1st, this, with a heavy crop of clover, was plowed and planted to EUGENE WILLETT potatoes, kept clean and free from weeds during the summer. Had we considered it lacking in fertility then, should have applied from 300 to 600 pounds of some commercial fertilizer containing more or less potash, usually the more potash the better.

N. Y



EUGENE WILLETT

If stable manure is used it should be piled up a year previous S. W. GILBERT and pitched over a few times to kill all weed and grass seeds. Mo.

The ground can hardly be made too rich, but should have been cultivated with corn or some other hoed crop for a year or two years, if the white grub abounds. Any system by which a large quantity of stable manure can be worked into the soil and well pulverized and made light, will be of advantage in setting J. W. ADAMS and after cultivation. Where barn-yard manure cannot be readily applied, equally favorable results have followed the use of commercial fertilizers, ground bone, superphosphate and ashes. Our foreman prefers superphosphate to any other dressing. This he applies in small quantities before setting the plants, and every ten days during the growing season of June, July and August. Mass.

HORACE J. SMITH If the manure is mostly green, plow in a good part of it, and do not put so much in on top. Wis.

The ground should be manured a year before, and cultivated
E. M. BUECHLY in some hoed crop, thoroughly killing all weed germs, and thus saving much labor in keeping the bed clean. O.

SUMMARY REMARKS.

Nearly all wisely recommend preparing the ground a year or two before the strawberries are to be planted by cultivating to hoed crops and then getting the soil mellow and the weed seeds sprouted and out of the way. Some recommend barn-yard manure, while others prefer some commercial fertilizer; but I have no doubt it is best to use both; but the stable manure had better be thoroughly rotted, and should have been well heated and several times turned, so that the hay and weed seeds contained in it will have germinated. However, I do not see how, if green manure be used and plowed under as much as four or five inches, the weeds can sprout and grow to do mischief. This hint I get from Horace J. Smith, of Green Bay, Wis.

Several recommend turning down a clover sod. Can anybody tell what a clover sod is not good for? Hale recommends perfect harrowing and a fearful dose of fertilizers, and I guess the more the merrier. He might have added a word in favor of that splendid implement, the Acme harrow. My plan is to apply fertilizers after plowing, and frequently through the fruit season, along the rows, using a two-row distributor made by Spangler, York, Pa. Little and often is a good motto in the application of fertilizers to the

strawberry bed. It is a good plan to use fertilizers as above, the first season, then with a thick mulch of good horse stable manure, well freed from the seeds of obnoxious plants, put on in the early winter. I do not often fail in getting a fine crop of berries, unless something unforeseen occur.



A BOX OF BEAUTIFUL PEARLS
Tim's Favorite

CHAPTER VI.

PLANTING.

Never set out a feeble plant.—TIM.

I HAVE found the Aspinwall potato planter, with the ridgers on, a very valuable implement for striking out for the strawberry rows. It can be made to ridge up slightly, which is right, and it deposits fertilizer in the row where needed for the young plants. Let the roller follow, and then draw a straight line with a garden rope, press the rope in with the feet for a mark, or set the plants along the rope. See to it that all feeble plants are thrown out and all old plants.

The color of the roots is a distinguishing mark of old plants. Such plants are worthless, and if any are discovered in packages sent from a nursery, they should be thrown away ; it is useless to set them.

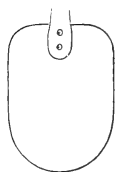


Fig. 1

A special trowel, Fig. 1, flat like a mason's trowel, but wide and full at the point, with extra large handle, is the best tool to use for setting. Let a boy go ahead and drop.

Be careful not to set too deeply as in Fig. 2, or too shallow as in Fig. 3, and do not bunch the roots as in Fig. 4, but see that every one goes in like Fig. 5.



Fig. 2

Above all, pinch the earth very hard against the roots of the plant, and this may be done with the toe

of the boot, afterwards scraping some loose earth around the plant with the trowel and fingers, to prevent the earth baking.

To ascertain how many plants are required for an acre, multiply the distance apart of the rows in feet by the distance apart of the plants in the rows, and divide the product into 43,560. Thus, if the rows are four feet apart and the plants two feet, it will take 5,445 to plant an acre.

A spading fork or small sized potato hook are two good implements for taking up plants for setting. A trowel is too slow. Rake the beds with a good steel rake before digging, which takes off most of the old runners and leaves the plants in good condition for cleaning.



Fig. 4

If the plants are in plant beds dig up the whole row, throwing out the old plants. If plants are to be taken from a fruiting bed dig from the side of the rows.

As fast as shaken from the soil have men and boys gather them up, holding the plants in the left hand. Crown of the plants as near even as possible, and when the hand is full trim off all runners and lay in a handle basket, roots straight, and all one way.

Take to the packing house. Clean and bunch them and dip the roots in water, and if to be shipped, pack in moss and forward as soon as possible. If to be set out at home, put them in the cellar for twenty-four hours before planting. The tip ends of the roots are cut off just before setting



Fig. 3



Fig. 5

For summer planting take up the plants with dirt adhering.

To grow strawberries successfully, beginners should order their plants very early in the spring. If a dozen, thirty or a hundred only are wanted, they can be sent by mail free of cost. Five hundred, or more, should go by express. If ordered early in April the nurserymen will send them as soon as the ground is fit to plant them.

When plants are received by mail or express from a distance they should be opened at once and the roots should be dipped in water. If the ground is not ready for them, break open the bunches, spread out the roots, and pack them closely together, so it will be impossible for the roots to dry out.



CHAPTER VII.

THE PLANTING SEASON.

For family beds fall or spring; for market only in the spring.—PURDY.

THE time of year to set out the strawberry bed will be considered in this chapter, and here I offer the concentrated wisdom of a legion of practical men.

Early spring every time. Every day's delay means a loss in vigor of plant growth the fruiting season, as, for the most perfect fruitage, we must have the best developed plants. Conn.

H. S. TIMBRELL Early in the spring is the best time. N. Y.

W. W. FARNSWORTH April or early May in this latitude. O.

G. S. BUTLER Very early spring. Conn.

EUGENE WILLETT Spring will always be found most satisfactory. N. Y.

All planting should be done medium early, say late in March or during April. If planted before frost in the fall the ground is apt to be heaved; if planted too late in the spring the heat soon kills them. Del.

A strawberry bed for market should be set in the spring as soon as possible after the ground is fit to work and men and teams can be employed. Wis.

BENJ. BUCKMAN As early in the spring as the ground is in good condition to work. Ill.

As a general thing early in the spring, although market gardeners and some other people find it very convenient to plant them at any time of the summer that crops can be taken off the ground. The earlier this summer planting is done the better. O.

GEORGE F. BEEDE Early in the spring. N. H.

EDWIN BEEKMAN In New Jersey the first week of April. N. J.

The month of April is the best one month of the year in
J. W. ADAMS which to transplant strawberry plants, especially for beginners. Mass.

SAMUEL MILLER In this latitude the first of March. Mo.

There are two objections to late setting. First, plants past
EDWARD W. CONE full bloom are not in condition to be moved successfully. Second, there is always danger of failure in case an early drought should prevail. Wis.

GEORGE J. KELLOGG Early in the spring. Planting in August or later is not profitable in the north. Wis.

SUMMARY REMARKS.

These people plainly focus early spring as the best period for setting out a strawberry bed, just as early as the work can possibly be done. To accomplish this, however, it is necessary to procure the plants early, which cannot always be done unless provision be made for it in time. It is well, therefore, if one has to send to a nursery for plants, to apply to one who makes a point of having plants at the proper time; or, if one grows his own plants, as he should, let it be in a southern exposure, in light soil, and take the mulch off early, so the plants can get a start.

But is early spring the only good time to set out a strawberry bed? Well, on this point, as on many others, it will not do to be positive, until we probe the question to the bottom. My own judgment is that the advice given in this chapter is good and will do to follow, at least by beginners, but let the reader proceed to the next chapter, and read what our good friend Adams says about summer planting.

CHAPTER VIII.

SUMMER PLANTING.

Have had good success in August.—ANDREW WILLSON.

SO much has been said against the transplanting of strawberries at any season than spring, says Mr. Adams, that I purpose to show a more perfect way for many people, if not for all, and to remove from farmers especially their threadbare maxim that “It’s cheaper to buy than to bother to grow ’em.”

If a person wishes to begin or to try new varieties, it is advisable for him to get his plants as early in the spring as it will be safe to sow early pea seed, and plant them in a row where they will have room to make runners. When the blossoms appear they should all be removed. The ground about the plants should be kept mellow by that best single tool—a fine tooth wooden rake. Encourage early runners to take root by fastening them to the ground with hooks or stones or clods of earth, that they may not blow about.

As early in August as strong young plants can be had, without destroying too many younger runners not yet rooted on a belt of land which you are supposed to have already prepared by deep plowing and enriching, draw a heavy line where you wish to plant the first row. With a flat wheel or with a common hoe you can press this line into the soil, when it can be removed altogether. By this simple method your rows will be perfectly straight.

A marker made in the form



of a rake with fine teeth fifteen inches apart, can be drawn first lengthwise and then crosswise, keeping the end tooth in the line already imbedded in the soil. Where the lines cross will be the points at which plants are to be set, and no runners must be permitted to grow.

If more than five rows are wanted it will be for the convenience of cultivators and pickers to omit the sixth row for a path, and then as the arithmetics would say, proceed as before.

It is very important that these young plants at this season should be removed without cutting or even disturbing the roots. Small pots are often used into which the roots are induced to grow and this method is to be commended if properly done. They must not be allowed to remain until they are too compactly rooted, that is, pot-bound.



The picture represents method of potting runners.

When we ship them to a distance, in order to protect the young roots, we send in the pots instead of knocking them out and wrapping the balls of earth in papers.

In our own garden, however, our land being somewhat inclined to clay, we can take up the plants with a round trowel with a lump of soil adhering and thus remove them to their new quarters without loss. Their growth will not in the least be retarded. The best crop we have ever produced was from plants set out on the nineteenth day of August, the plat being 250 feet long and five rows wide. It was a trial bed with numerous varieties, but the product of one end

was measured and proved to be at the rate of 10,500 baskets per acre, all grown within ten months from time of setting. Had they been transplanted with less care, the value of the crops would have been of little account.

When planted in the spring it requires the best part of two seasons to perfect a large yield, thus losing the use of the land for one entire season and adding much to the labor for so much longer a period; for the cost of cultivating so short a time in hills is trifling compared with hoeing and weeding where runners are permitted to grow.

SUMMARY REMARKS.

I desire to add my testimony to the advantage of growing berries by this plan, for it is the method of Ezra Bell, one of the most successful growers of fine strawberries to be found in the model State of New Jersey. The Ezra Bell berries, for size, appearance and quality have long been famous in the Philadelphia markets.

CHAPTER IX.

SUMMER PLANTING.

(Continued.)

Time may be saved by summer planting of rare varieties.—TIM.

THIS subject is partially treated in the previous chapter, but I think it best to give it a little more ventilation, and present the views of several growers on layer and potted plants for late summer and fall setting.



The illustration represents a nice potted plant, ready to be set out in late summer. Such can be had of any plant nurseryman, and will make strong bearing plants the following June.

A. M. PURDY My experience is, nothing is gained by fall planting, considering the extra expense and work. N. Y.

Potted plants I have not practiced with, but depend on layers
SAM'L MILLER well rooted, and if these are set at any time before the middle of October, can bear a fair crop of fruit the following year. Mo.

Layer plants, if properly set at a favorable time, do as well
G. S. BUTLER as potted, but for dry weather the latter are safest. The advantage of fall setting of plants is time gained in early spring. Conn.

Potted plants will only give good results when set out just
A. W. SLAYMAKER at the right time or before they have become cramped in the pots. Fall planting is not satisfactory here. Del.

We get good results from both layer and potted plants.
T. J. DWYER Layer plants can be planted with safety in September, October, and the first half of November. N. Y.

Potted plants I have given up and do not bother with.
GEO. Q. DOW Would just as soon have strong layer plants such as I grow. N. H.

I would rather have good layer plants than potted plants at
H. S. TIMBRELL the same price at a dry time. The roots of a potted plant do not go deep enough to get moisture. N. Y.

I prefer layer plants, if to be set in the fall. Potted plants
M. A. THAYER are not worth the difference in price. Layer grow just as well, and bear just as well. Wis.

Our seasons are too short and too cold to practice fall set-
A. G. SHARP ting, and I want a full season or more to get good strong plants. Mass.

Have never set potted plants; do not believe
BENJ. BUCKMAN in fall setting here. Ill.

There is nothing but time saved in fall setting, and I would not recommend it for this section. We do much setting in the fall, but it is expensive, and we do it
E. W. REID to save time, nothing else is gained. Pot grown plants are not profitable for fruit growers, they are too costly, but are well enough when one wants a bed for home use, or to get a set for some new variety. O.



E. W. REID

I prefer layer plants, they are more thrifty in my soil than potted ones and are sure to live. I never could get much of a crop of fruit from fall set. After the first frost, plants will not
GEO. F. BEEDE grow much; this often happens in September. A few varieties will bear about one-fourth of a full crop and plants are just up for next season as much as spring set plants. N. H.

Potted plants and fall setting do not pay.
R. D. MCGEEHAN Have quit it entirely. Ia.

I do not consider potted plants any better than layer. If J. G. BUCHANAN not planted exactly at the right time they are worthless. O.

J. H. HALE We have put little faith in potted plants and fall setting on a large scale. It can be done in a small way. Conn.

SUMMARY REMARKS.

Very interesting details of the best method of summer planting have already been given by Mr. Adams, and I especially direct your attention to his plan for obtaining early layer plants discussed therein. It is interesting to note that many of the experts condemn potted plants and say they have better results with layers for fall planting. If one wishes to test new varieties that were not obtainable the spring before, he may be wise in buying plants in the fall but not for growing fruit for market.

Matthew Crawford says, that the soil for fall set plants should be rich, so that their roots may find what they need near by, for they have not time to go far after it. It is well to prepare the plat a week or two in advance, so as to let the ground get settled. And it is very important that the crown of the plant should not be covered.

If it is desired to test a new variety, the fall is the best time to plant it, for the reason that it will bear the next season, and enable one to decide as to its value and give ample time to greatly increase the stock.

The later the work is done the closer should plants be set to each other, so that they may fill the row

with roots and shade the surface with their leaves. If set twelve inches apart in the row in July, ten inches will be enough in August, eight in September, and six in October. The sun should never be allowed to shine on bare ground between plants in the row during the winter or early spring.

Southern people who wish to buy northern grown plants should do it late in the fall. They cannot get them early enough in the spring, and their summer and early fall are too hot for plants grown in the north.



CHAPTER X.

SAVING LABOR.

Never let the weeds get a start.—TIM.

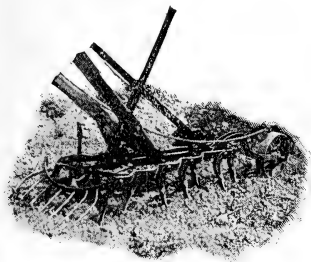
NOT only does it take brain work to grow strawberries successfully, but it requires hand work as well. But in this, as in most operations of the farm, the brains can save the hands a heap of



Planet Jr. Horse Cultivator at work

drudgery. Any one who does not possess a well-organized brain had better not undertake berry culture,

for he will have so much to do with his hands in order to obtain a compensatory crop, that his efforts



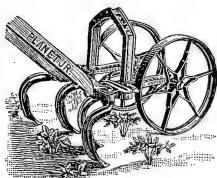
Planet Jr. Narrow Tooth Cultivator

will most likely result in failure. He will soon become disgusted and declare that it does not pay to bother with growing strawberries. It is not much bother to the one who has a good share of gumption, a little spunk, was not born tired,

and has a genuine love for the fruit after it is grown.

It will be noted that the Planet Jr. narrow twelve tooth Cultivator is generally approved as the correct implement in the strawberry bed; nothing could be better; nothing else so good; so I have taken pains to give it here and to show the clean rows it leaves behind.

The teeth are all adjustable and those nearest the row may be turned backward, enabling the user to run shallow and avoid tearing the roots of the plants; every berry grower must have this tool. I also show another essential implement for those who have only



Two Wheel Hand Cultivator

a garden bed, this is made by the Allen firm and is called the two wheel hand cultivator. By pushing this along the rows frequently all weeds are kept down, the ground kept mellow, and hand hoeing lessened.

Again I call on our good friends to tell us how to save hand hoeing in strawberry culture, and how the heavy end of the labor can be done by horse power.



W. W. FARNSWORTH

Destroy as many weeds as possible the year before after the potato crop. Cultivate close and shallow both ways until the runners are set and then only one way. W. W. FARNSWORTH Use Planet Jr. with sweeps one time and scraping shovels to scrape away from the plants the next time, and harrow often to prevent the weeds getting too large. O.

On my soil it is not possible to dispense with hand hoeing. The Planet Jr. EUGENE WILLETT Cultivator and a light thin bladed hoe in the hands of an active man are the surest, safest, and, in the end, quickest way I have ever found. N. Y.

I never could get along without considerable hand hoeing. For cleaning out old beds I use Boss Plow that has a mold-board about as large as one's hand, which H. S. TIMBRELL leaves the ground level and all the rubbish on top, and I use a fine tooth cultivator which cleans them out of the row which will have to be hand hoed.

N. Y.

W. C. WILSON Planet Jr. Cultivator and Horse Harrow supplemented by hand hoe.

Ill.



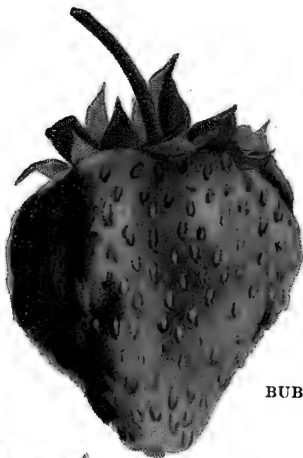
H. S. TIMBRELL

The best way to save hand hoeing is to use cultivators every T. J. DWYER ten days or so. A careful man, steady horse and proper tools are very essential requirements in the care of strawberries. We use the Planet Jr. Cultivator. N. Y.

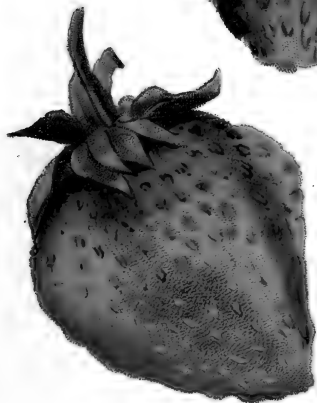
GEORGE Q. DOW Use a fine tooth cultivator. The Planet Jr. people make one with lots of fine teeth. N. H.

M. A. THAYER Cultivate strawberries both ways just after setting and continue until time to set runners. Wis.

PLATE I.



BUBACH



DAYTON

PLATE II.



HALLIHAN



GREENVILLE



GREENVILLE

To save hand hoeing, plant in rows that are $3\frac{1}{2} \times 2\frac{1}{2}$ or $2\frac{1}{4}$ feet and cultivate both ways until plants commence to make W. F. ALLEN, JR. considerable runners and then cultivate only the wide way. By this method only one or two hoeings will be necessary. Md.



A. G. SHARP

Use Planet Jr. eleven tooth Harrow-Cultivator, teeth fine; does not throw dirt A. G. SHARP on the plant and can be run very close This harrow is changeable in width and can be changed while in motion. Mass.

Plant in rows four feet apart. As fast as the runners are large enough to take root let them run in the rows to the right and left so as to stand in a narrow line, A. I. ROOT then you can get close up to the plant with the cultivator. I do not know of any tools better than the Planet Jr. fine tooth; this can be run close up to the plant and not injure the leaves. O.

Cultivating should be done soon after rains when the ground is soft. A special trowel for setting plants like a mason's trowel, GEORGE F. BEEDE wider and full at the point with extra large handle is the best tool for setting. A toothed Sunnyside hoe is the tool for hand work. I enclose cut of trowel. N. H.

I am prejudiced in favor of the good old hand hoeing. Absolutely clean culture is not possible without it. By mark- EDW. W. CONE ing ground as for corn and planting so as to admit of cultivation both ways, hand work may be lessened considerably. Wis.

Early runners make the best plants; GEO. J. KELLOGG cut off the late runners. Wis.



EDW. W. CONE

We use one heavy fine tooth cultivator and a lighter one HORACE J. SMITH with fourteen teeth. There will be still some hoeing to do as well as weeding, which later, as well as the setting of runners, we do with a crew of small boys. Wis.

BENJ. BUCKMAN Cultivators should have many teeth and run shallow. Ill.

WM. JACKSON I plant in check rows and use Planet Jr. Cultivator, running both ways, as long in the summer as I can. Ill.

The best tool to save hand hoeing is the Planet Jr. Horse
WM. HOOVER Cultivator. We use one and a quarter inch
steels and can cultivate within one inch of the row. Col.

J. R. HAWKINS The best hand hoe is made about two and a
half or three inches wide, attached to an ordinary handle. N. Y.

REMARKS.

When I go out to work in the berry patch after Allen's Cultivator has done all it can, I take a hoe like this, and am sure to keep it sharp. The blade is three inches wide. I generally work this by proxy and find it easier that way and more effective.



Here you have it: Plant in rows both ways; use Planet Jr. Cultivator, going over the ground once a week, killing weeds when they are young; get the ground free from weed seeds by previous clean cultivation in hoed crops; apply no fresh manure containing weed seeds. After the runners are spotted out in July and August, use hand hoe among the plants when necessary, keep the ground mellow, and let no weeds get a start; give abundant space to each plant, and fertilize liberally, so you will not have small berries to pick.

When the runners begin to grow in June or July, the first ones should be cut off, so as to allow the plant to acquire strength. Later it will send out new runners on all sides instead of on one side.

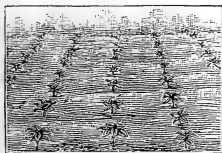
Attend to these things, and you will find it is not such a serious matter to grow plenty of strawberries.

CHAPTER XI.

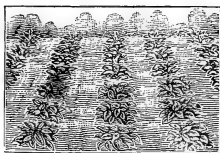
DISTANCE APART.

Call all plants from late runners weeds.—TIM.

I CONSIDER this one of the most important chapters in the book, for strawberry culture depends largely on the distance the plants stand from each other at fruiting time. Most growers have too many plants on the ground, which insures small berries, low prices for those marketed, much extra labor in picking and general failure. It is not so important how closely the rows or plants are as first set out, but how thickly the plants are allowed to remain in the matted rows is an essential consideration, which does not receive the attention that it deserves.



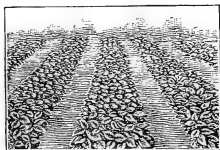
Rows a Month After
Planting



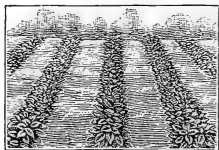
Hills at Bearing

I will illustrate the matted row and hill systems of culture. Some growers prefer the wide matted row, some the narrow; some prefer to keep the plants in hills, cutting off all runners. For myself I like best the wide matted row, for I believe if the plants are not allowed to become too thickly matted, they do better this way. Strawberries must be shaded from the sun, they color better, and hold out better

through a hot spell, which is sure to come, and this condition is better obtained than in hills or narrow rows.



Wide Matted Rows



Narrow Matted Rows

Here is what the experts say about distance apart for best results :

SAM'L MILLER Rows three and a half feet apart and the plants eighteen inches apart in the rows. Mo.

Vigorous varieties set four feet and two feet in the row. Set **GEO. F. BEEDE** well growing varieties fifteen inches in the row ; have plants thick or thin, as suits the variety. N. H.

Rows four feet apart and plants two feet apart in the row ; **A. I. ROOT** thin before freezing weather. I would thin the plants out so they are about six inches apart from centre to centre. O.



WM. D. BARNs

Three and a half feet is the proper distance for the rows, and fifteen inches in the rows. Varieties like Michel's **WM. D. BARNs** Early and Crescents, that throw out a great many runners, should be set six inches further apart each way. N. Y.

Plants should not be closer in the **H. S. TIMBRELL** matted row than six or seven inches at picking time. N. Y.

The rows should be planted three and a half feet apart, and **T. J. DWYER** the plants in the row should be twelve to fifteen inches apart at picking time. The matted row should be from twenty to twenty-four inches wide. N. Y.

It makes a difference what varieties are planted ; Warfield, Crescent, Michel's Early, etc., should be planted not less than two feet apart in the row, as a rule ; while kinds that make EUGENE WILLETT a slower stand should be much closer, say from twelve to eighteen inches. While we formerly planted five feet apart, now we plant only four feet, and make the middle space narrower.

N. Y.

We put all rows out three feet four inches apart every ten feet, which can be easily measured and marked by stakes containing three rows. Had we planted to rich land four feet apart might be better, but we think not. The plants might be set the same distance apart and have the soil cultivated both ways. On a large scale this would be our plan. Should any one prefer to set the plants nearer together, as many do, they could be planted twenty inches apart, and still be cultivated both ways, or in rows by the modern steel frame cultivators. It is a common custom, recommended in all books, to run the cultivator through the rows, always in the same direction, thus pushing the rows aside and massing them together, and for what purpose? To save J. W. ADAMS labor ostensibly. What is the result? A dozen or so of unproductive plants to the square foot, stunted in growth, in flower and in fruit. At the Field Day Show of the late P. M. Augur, two young men sat down and counted more than 200 berries on one plant, the fruit being of good size. How much space do you think that single plant occupied? Would you grudgingly give that plant a square yard of ground? If you would have maximum results select your runners as they appear, allot them a space more than a foot square for every three or four plants, and then defend them in their lease of land against all weeds or runners. Then it has been our practice, as soon as the runners well cover the ground, or about October 1st, to cut out all of the old plants set out in the previous spring. In this way we obtain less in number, but much larger berries.

Mass.

I believe the best and cheapest way of setting plants is to mark the ground both ways in checks; in hills, three to four feet S. W. GILBERT and cultivate both ways. Keep all runners off until the plants are well established, and then train the runners to fill the three foot space. Six inches apart is close enough for the plants, and a foot would be better.

Mo.

I set my plants about one foot apart in the rows, and rows one foot apart. Only two rows in a bed, alternating the plants so as to take up all the space in the rows. I always cultivate JOHN F. BEAVER the plants in the spring, and in planting alternately in the rows, I can cultivate each plant, which will make a very material difference in the growth of both foliage and fruit. I cut off all runners. O.

(Mr. Beaver is an amateur grower, who has only a garden patch, but is famous for big and beautiful berries, often exhibited at his county fair.)

GEO. W. ELVINS We have the beds twelve inches wide, with six inches for the growth of each plant. N. J.



DR. J. STAYMAN

It is better to set the plants rather close in the rows, to get a good stand as DR. J. STAYMAN early in the season as possible, and then cut off the late runners, as they are often blank plants that do not fruit. Kan.

ROBT. H. GILLIN The plants at picking time should be eight to nine inches apart. Pa.

BENJ. M. SMITH Plants in matted rows should be thinned so they will stand eight to ten inches apart at picking time. Mass.

SUMMARY REMARKS.

The novice in strawberry culture, and even the veteran, may well read this chapter over two or three times. The lesson should be learned by heart that each plant should have plenty of room to develop and perfect its fruit, and that some varieties require more than others. I do not believe any sort will do its best in less space than fifty square inches, and some kinds should have double that.

Another lesson which ought to be well studied is the importance of obtaining strong plants from the early runners, as advised by Mr. Adams and Dr. Stayman. Some varieties, like the Gandy, bear scarcely any fruit at all on feeble plants, while on the early started strong ones, they yield quite well. Many have discarded this splendid berry, because supposed to be a poor yielder, when the whole trouble is as indicated above. I would say, set your plants in rows four feet apart; place the plants two feet apart in the rows, and let the rows run both ways, so the cultivator can run both ways until July; then spot the runners eight inches apart, as they form over a space thirty inches wide, and cut off every supernumerary runner after the ground is filled.



CHAPTER XII.

MULCHING.

Do not rake off the mulch in the spring, loosen it up.—TIM.

THE importance of mulching is becoming better understood than formerly, and the work is done with more thoroughness. The advantages from it are well set forth below.

A. M. PURDY Doubles the crop. N. Y.

Mulching is almost indispensable, and with underdraining
SAMUEL MILLER and facilities to irrigate, strawberry growing
successfully hardly can fail. Mo.

Underdraining adds much. It retains moisture and admits
E. W. REID air from below that makes it much better for
working. O.

A. G. SHARP Mulching keeps fruit clean and helps to carry
through drought. Mass.



CHARLES WRIGHT

I have never seen any advantages here from mulching. I have tried straw but got less berries where I used it and not
CHARLES WRIGHT half so good, either. Wet ground should certainly be underdrained. Moisture is always essential for strawberries. Del.

A. P. SAMPSON We have to winter mulch and use meadow hay. Mass.

We mulch in the fall after the ground freezes. It keeps the ground from thawing in the hot sun and prevents heaving or wintering out. It
H. S. TIMBRELL keeps the foliage green and fresh, and a heavy mulch during the picking season keeps down weeds and the berries clean from sand and dirt, also keeps the pickers clean, helps hold moisture in a dry time, and answers for manure when plowed under. N. Y.

The advantages of mulching are that when applied at the beginning of winter it prevents the plants being drawn up by the frost, disturbing and breaking the roots. If left on late in J. W. ADAMS the spring it helps to escape frost while the plants are in bloom, and it also retards ripening of the berries. When renewed in the spring it keeps down weeds, and the fruit from sand and dirt. Mass.

Mulching is absolutely necessary at the north for winter protection. Some varieties, such as Parker Earle, absolutely need four inches of well rotted manure, GEORGE J. KELLOGG covering the entire space between the rows to protect them from drought and feed the enormous burden of fruit, and the same treatment will pay on all varieties. Wis.



Without mulching, the bed becomes Z. T. RUSSELL thoroughly set with weeds and grasses, and is ruined by a few days' drought. Mo.

SUMMARY REMARKS.

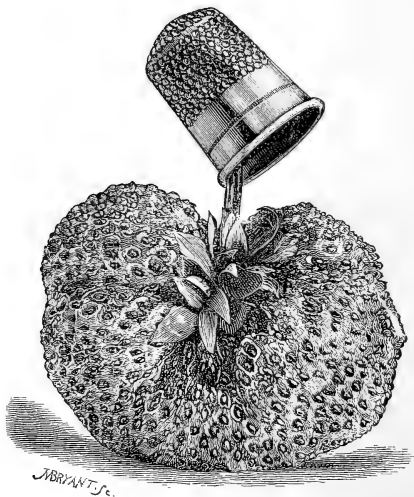
I have but little to add to the above arguments in favor of careful mulching. Early winter is the best time to do the work, after the ground becomes hard enough to bear a team. Swamp hay, straw and cut corn fodder are all good materials for the purpose, but the best thing is well fermented and rotted horse manure. The plants should always be covered up clear out of sight during the winter, and in the spring the mulch should be retained around the plants, but not directly on them. A heavy mulch left on late in the spring insures late berries. The plants must have some vent if covered deeply after the weather warms up, but do not rake the mulch off the row.

It is somewhat remarkable that a close cover like a leaf of a turnip, put upon a plant, will surely finish it, but a pint of sand will do it no harm. The moral is to have a loose mulch for the strawberry bed.

Spring cultivation is a delusion and a snare. Keep the ground moist and mellow by a suitable mulch, not by cultivation.

Taking the mulch off too soon is a fruitful cause of injury from frost.

For a late crop of late berries four inches are not too deep for the mulch.



A THIMBLEFUL

CHAPTER XIII.

UNDERDRAINING AND IRRIGATION.

Too much water in the soil is as bad as too little.—TIM.

THE strawberry is such a thirsty plant when it is loaded with fruit, that ample provision should be made to give the bed all it can use of water. In ordinary seasons on some soils this can be done by thorough mulching, retaining the moisture provided by spring thaws and rains throughout the fruiting season; but in dry weather the crop is often shortened through lack of water unless underdraining or irrigation, or both, are resorted to. Underdraining is needed on all soils with a hard clay bottom, whether the season be wet or dry, and a bed should never be set in such a soil without underdraining, as failure, partial or complete, will result if the season be either very wet or very dry. Underdraining will double the crop. Irrigation is not practicable on ordinary farms, but when a bed can be planted near a stream or pond that will yield an abundant supply of water it has been found advantageous to irrigate, which will largely increase the crop and greatly lengthen the bearing season.

E. G. TICE Underdraining makes a larger and much better crop.
N. Y.

Underdraining by first drawing off the surplus water encourages the plants to make a much deeper penetration of the soil with their roots, which is an immense aid to the production of fine large berries during a critical time in the life of the plants.
Wis.

Strawberries require an immense amount of water to achieve
 EDWIN BEEKMAN perfection, hence the advantage of low
 lands well ditched. The ditches can be stopped so the beds can
 be flooded at night. N. J.

Underdraining renders the soil loose and protects against
 ANDREW WILLSON wet and dry weather. Irrigation is rarely
 needed when the ground is underdrained and mulched. O.

BENJ. BUCKMAN Underdraining is valuable on all ground in
 some seasons and on wet ground in all seasons. Ill.

We have practiced irrigation for raising plants but not for
 A. I. ROOT fruit. For filling orders for fruit promptly in
 summer we find irrigation a necessity. O.

A. G. SHARP Underdraining lightens a heavy soil. Mass.

All fruit land must be underdrained either naturally or
 artificially. When the subsoil is porous gravel or sand the
 WM. D. BARNES natural drainage is complete. A clay or hard
 subsoil should be underdrained before a crop of strawberries
 can be grown with any certainty. N. Y.

W. C. WILSON I believe that underdraining pays on any soil
 except a very dry sandy one. Ill.

Underdraining lightens a heavy wet soil, keeps it from bak-
 ing, makes it more porous with a better circulation of air
 through it, draws off all stagnant water, which some varieties
 H. S. TIMBRELL of strawberries will not stand at all. The
 Crescent and Manchester die on a heavy, wet clay soil, and
 also others of the same strain, but such as the Sharpless, Tim-
 brell, etc., may thrive on it and produce large crops. N. Y.

Underdrainage is a great benefit to any wet soil, and some
 lands not called wet would be greatly helped. Heavy land is
 EUGENE WILLETT kept more pliable by lessening the chance
 of its baking after a heavy rain. It is sooner worked and easier
 kept tilled. N. Y.

No use to try to grow berries profitably without under-
 W. W. FARNSWORTH draining unless the soil be naturally
 well drained. O.

Underdraining is conducive to health, growth, and moistens heavy soil for various reasons. It removes stagnant or muddy water and thus warms the soil, which is very important. All rains which fall then pass through the soil. The stagnant water having been drawn out, the land is capable of receiving and retaining for the use of plants as much water as will fall in ordinary showers. Irrigation is beneficial in many ways, but J. W. ADAMS especially so when the fruit is swelling, for the strawberry loves moisture, and cannot perfect its fruit without it. How and where to apply it has caused many doubts. We have usually let it run between rows on the surface, our land being neither level nor steep. Water runs a long distance without soaking away too soon and without washing. We have never tried plowing a light furrow and laying small underground tiles, but the plan seems feasible for steep side hills, and not too expensive to be profitable. Mass.

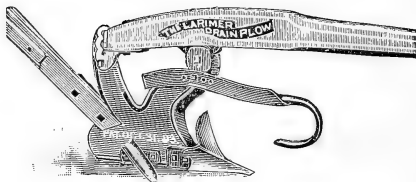
Strawberries want water ; more of it than they are likely to get. Irrigation makes big berries out of what otherwise might be little ones, or helps to make the last picking almost as fine as the first. It makes big, showy berries, and also makes J. H. HALE them with less color, soft in texture and not so good in quality as without it ; and it is a sight more satisfactory to sell water in the strawberry than in milk, especially after it has been drained from the cow. Conn.

REMARKS.

I said in the beginning of this chapter that in stiff clay soils underdraining will double the crop, and I wish to emphasize the statement by repeating it here ; but it is without the compass of this book to describe methods of underdraining, and I refer the reader to a capital little work on the subject, written by W. I. Chamberlain, and published by A. I. Root, of Medina, Ohio.*

*The price of this excellent work, paper binding, sent by mail, is forty cents, and it can be ordered through the Farm Journal.
W. A. Co.

I may add that I am strongly impressed with the merits of the ditching plow made by the Larimer Ditching Plow Co., of Crabtree, Pa., so much so that I shall use one this fall. Shown here. If we under-drain we must save cost as much as possible, and this tool ought to do it.



Ditching Plow

CHAPTER XIV.

STAMINATES AND PISTILLATES.

(Perfect and Imperfect.)

Be sure to provide plenty of pollen.—TIM.

THESE terms are now well understood by others than novices in strawberry culture, but beginners may need to be told that the staminate plants are those which carry their own pollen, and are, therefore, called perfect flowering, while blossoms of pistillates contain no pollen, are imperfect flowering, and, therefore, require the aid of a staminate variety before they will produce fruit. A strong staminate blossom is

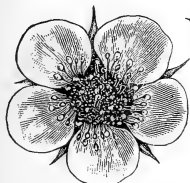


Fig. 1

shown in Fig. 1, a pistillate in Fig. 2, while a feeble staminate is indicated in Fig. 3, which has a few stamens only, and they not fully developed. The

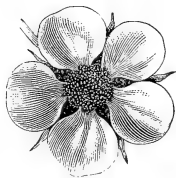


Fig. 2



Fig. 3

Haverland, and some others recognized as pistillate sorts, have a few stamens, and furnish sufficient pollen for self-pollenization, under favorable conditions; and such kinds are usually more prolific of fair fruit

than pistillates which are entirely devoid of stamens. Staminate plants can be grown in a bed by themselves, and

will bear fruit; pistillates are fruitless, unless they have staminate nearby to fructify them. The necessary pollen is carried from staminate to pistillates by the aid of the wind and of bees, and rainy weather in blossoming time is apt to interfere with the distribution of pollen, and cause an imperfect crop of fruit, in which many specimens are shortened at the apex, small and ill-formed. Wet weather likewise interrupts the perfect development of fruit on staminate varieties, but to less extent than on pistillates.

It is a question often discussed among berry growers, whether it is best to discard the imperfect flowering varieties entirely, owing to the inconvenience of always having to plant a suitable pollenizer near them; and I have asked the opinions of the experts on the subject, and also what proportions of the two kinds should be planted together.

The imperfect will never be discarded. They are most productive, yet we find the most of them soft and only good for home market. One great point in favor of imperfect is, they are less liable to be killed by late frosts. I would always have one. E. W. REID third of the perfect blooming varieties, but would have them of two varieties, one to be an early bloomer, and the other a late. This makes a fine change in the size of the fruit of the imperfect at the last of the season. They are not so apt to run irregular or knotty. O.

No; pistillates properly pollenized are better. The production of pollen seems to weaken the perfect flowering kinds. Two rows of perfect and two rows of pistillates are better than any less proportion. Wis.

The staminate vary in the amount of pollen produced, and some varieties are more strictly pistillates than others so-called, and require an abundant and close pollination. Wis.

PLATE III.



PEARL.

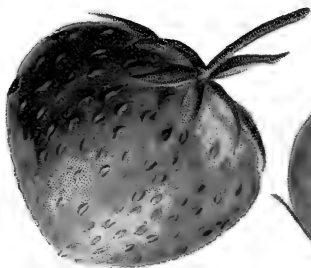


BANQUET

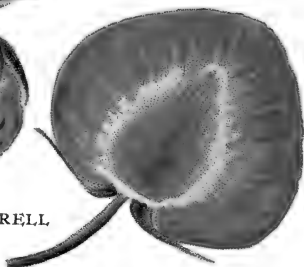


HAVERLAND

PLATE IV.



TIMBRELL



SAUNDERS



WARFIELD

ANDREW WILLSON No; every third row should be staminate. Some of the very best are imperfect flowering. O.

No staminate that I know of are heavy croppers, unless it
 BENJ. BUCKMAN may be Parker Earle. Proportion varies, say four rows H. and two rows P. Ill.

Imperfect varieties are somewhat of a nuisance, but cannot
 A. I. ROOT be discarded, especially such varieties as Bubach, Haverland and Warfield, and some others, until we find some other varieties that will give the same results in berries. O.

By all means, as it is a nuisance to have to plant a staminate
 A. G. SHARP to every third or fourth row, as is now necessary with these imperfect flowering varieties. Mass.

H. S. TIMBRELL I think not; as the imperfect are, as a rule, the most productive. N. Y.

J. R. HAWKINS I am not in favor of using imperfect flowering varieties. N. Y.

In planting both kinds equally valuable, I would plant in alternate rows. When one variety is most valuable, then plant
 J. H. HALE two to one. Have sometimes planted three to five rows imperfect, to one of perfect, and found it all right if dry weather prevails at planting time, but more or less of a failure if rains come when plants are in bloom. Conn.

I think we are soon coming to the time when imperfect
 G. F. WHEELER flowering varieties will be discarded. The introduction of a few more staminate kinds will make it impossible to introduce anything but a perfect flowering variety. Mass.

Many growers of plants say, "Give me perfect blooming plants, I do not want the setting of so many kinds." Not so the experienced grower, for he has learned that the pistillates are the ones from which his baskets are filled, and his pockets
 J. W. ADAMS replenished. It is yet a disputed point what proportion of flowering plants to be used. We recollect one excellent crop from pistillate varieties with no other sorts within one hundred feet of them. We have now settled on one stereotyped rule of three of pistillates to one of staminate. Mass.

Not yet. There is no variety among the staminate kinds
EUGENE WILLETT that will yield quite what pistillates do. We
usually plant two of staminate to four of pistillate. N. Y.

BENJ. M. SMITH I do believe it is best to discard, as far as
possible, imperfect flowering varieties. Mass.

One thing I have observed that I have never seen in print, is
E. M. BUECHLY that the pistillate berries are more hardy in
spring frosts than the staminate sorts. O.

SUMMARY REMARKS.

These answers cover the ground admirably. Two of them call attention to the fact that early spring frosts are more apt to injure the staminate blossoms than the pistillates, and I know this is correct. The Sharpless, which is a staminate, is most liable of any to be frost bitten and ought to be discarded, or at least, planted sparingly. Some varieties, notably Haverland, which is considered a pistillate, have some pollen of their own, and require less care in planting a staminate variety near them; in fact, the Haverland will almost fertilize itself. There are other pistillates with similar capacity, especially in favorable seasons.

Ordinarily, I think it best to plant one row of staminate to two of pistillates, or better still, perhaps, plant each in alternate rows.

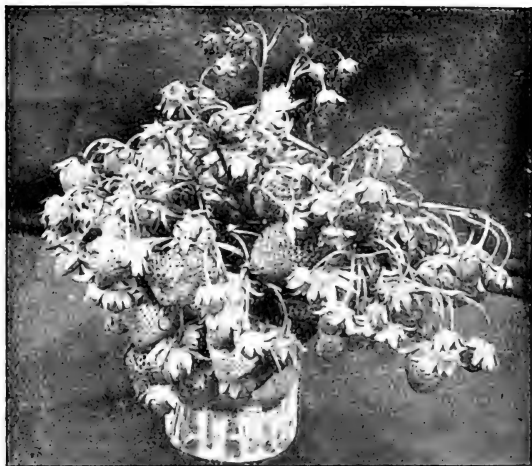
Care must be taken that the pollenizer be a sort that will bloom abundantly, and early and late, so that the adjacent pistillate blossoms may receive pollen throughout the blossoming period. For this some varieties of staminate are much better than others, some are quite inadequate. It is important, also, that

the staminate and pistillate to go together should be selected so that the fruit will ripen at the same time, and that it be nearly the same shape and color, so that it can be picked and sent to market in the same crate. It requires skill to do this, but it will repay careful study. For instance, the Pearl or Parker Earle is well adapted to fertilize the Haverland, being of the same form and ripening nearly enough at the same time. It is probable that every desirable pistillate sort has a good friend among the staminate that it should be married to in preference to the others, and the wide-awake berryman will look sharp that his varieties be well mated.

A pistillate variety will vary quite perceptibly when fertilized by different perfect varieties; so, if you want firmness, you should fertilize with a firm berry; if sweetness is wanted, fertilize with a sweet one; if dark color is wanted, fertilize with a dark one. In fact, whatever peculiarity you wish to transmit to the pistillate variety, seek it in the perfect variety you would fertilize by. Staminate affect the size, color, solidity, shape and quality of pistillates. Make a study of which varieties planted together bring the best results.

The honey bee will visit 10,000 strawberry blossoms in a single day.



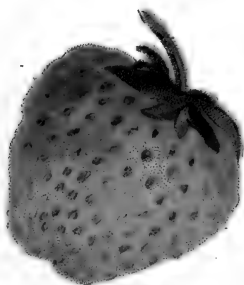


BOUQUET OF SAUNDERS

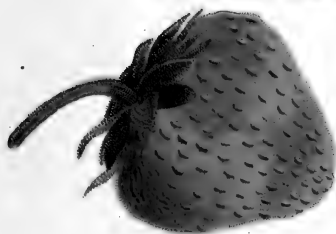
WITH COMPLIMENTS OF TIM'S WIFE

Showing one plant of Saunders, and berries which grew thereon,
taken from our patch after one picking. Saunders is
remarkable for vigor of plant, size and beauty
of berry, and extreme productiveness

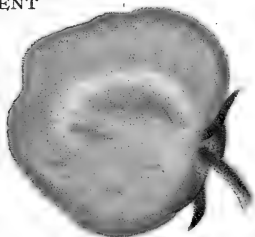
PLATE V.



EDGAR QUEEN



CRESCENT



EDGAR QUEEN



LOVETT



BARTON'S ECLIPSE

CHAPTER XV.

TEN VARIETIES OF ESTABLISHED MERIT.

'Tis easy to go further and fair worse.—TIM.

I SHALL not undertake to describe all the varieties of strawberries now before the public. I shall not describe any which are likely to be soon discarded, owing to some fault or lack of positive merit.

For one thing, I do not possess the facility of language, or the elasticity of conscience that will induce or enable me to bestow superlative praise upon a hundred different varieties. I have found it very difficult to decide how best to present the question of varieties, since there are so many with such varying merits and faults in different localities, and under different conditions, and opinions of growers vary so much; but I have concluded to first present a standard list, consisting of ten sorts of established merit, such as have been well tested in all parts of the country, and which have proven to be worthy of trial, and which are pretty sure to give a good account of themselves under fair conditions of soil, climate and culture. Some of them, like the Crescent, are supposed to have run out, and others, as the Parker Earle, are not free from faults; (did you ever know a variety free from faults?) yet I consider the ten named, all things considered, the best ten to be found among all the varieties now before the public.

In this list please observe that the staminate, or perfect flowering, are in large type; and the pistillates, or imperfect, are in small type.

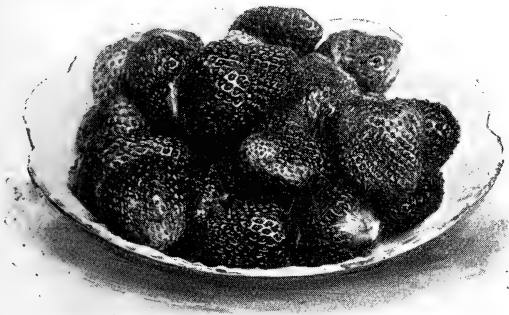
BUBACH.—The foliage of the Bubach is of medium green color, the plant vigorous and healthy; productive of very large, roundish, conical berries; many of them obtuse conical. Color, dull scarlet; flesh, pink. It has been before the public for several years, maintaining a high reputation in nearly every part of the country. An abundance of manure will cause it to run to vines. It does well in rather poor soil, where no other kind will flourish. It is rather soft for shipment to a distant market, but for nearby market it is among the very best. Cumberland is a good variety to fertilize it with. Bubach is undoubtedly one of the most valuable and popular varieties ever used. It receives more votes than any other from the experts. Shown on colored Plate I.

GREENVILLE.—This is a fine, large berry; considered by some an improvement on the Bubach, ripening a few days later. It is very productive. It is not firm enough for long shipments, but the plant is free from disease; berry of fine appearance and good quality. The foliage is strong, dark green; the berries are a glossy crimson, with bright yellow seeds; flesh, medium red. Each plant throws up several fruit stalks, and the berries on each one of them ripen at the same time. Rich, spicy flavor. I commend this for general trial for a market or home fruit. Season, medium to late. Shown in colored Plate II.

HAVERLAND.—The plant is thrifty, of medium green foliage. Sets plants freely, but not too much so. Productive of long, conical berries, of scarlet color, with some neck. Yellow seeds; pink flesh, of not very high flavor. Under favorable conditions it is enormously productive of very attractive, salable berries, which ripen all over. They grow on long stems, which lie on the ground, and if rains come at ripening, followed by hot sun, are liable to rot. It is hard to say too much for the Haverland as a market berry; it gives us berries moderately early, and holds out well until the last. The Lovett is a good variety to fertilize it, but it has some pollen of its own, and some seasons will nearly fertilize itself. Shown on colored Plate III.

SAUNDERS.—This is a grand berry. Originated with John Little, of Ontario, Canada. The plant is healthy and very vigorous, as much so as the Haverland. The berries are very large, glossy crimson, of good quality, with bright yellow seeds and red flesh. It yields immensely under fair conditions, of very salable berries of solidity to market well. It sets fruit almost as freely as Parker Earle, but, unlike that variety, is able to carry to maturity all the berries that form. Elsewhere is shown a group of Saunders, all taken from one plant from my own patch. Shown also in colored Plate IV.

PARKER EARLE.—Plant, robust, strong and healthy, with many crowns; wonderfully productive of conical, medium sized berries, with slight neck; of rich, glossy scarlet crimson, red flesh, sub-acid, and indifferent in flavor. Sets usually more berries than it can



PARKER EARLE

A splendid late berry, but the plant tries to do too much and sometimes fails

bring to maturity or ripen, and the plant suffers in consequence, and is ruined in dry seasons. Irrigation would probably bring out its good qualities. It is a good shipper; season late. It should be grown in rich, moist ground. Shown in colored Plate VII.

LOVETT.—Very vigorous plant; rich, dark glossy foliage. Very productive of medium sized roundish conical, crimson berries, seldom ill-shaped, with light red flesh. Some specimens quite dark red all the way through. Sub-acid without much flavor. Larger and more productive than the Crescent. It is an excellent pollenizer, furnishing bloom through the season. Hale says it does better in loam or clay than in sandy ground. Shown in colored Plate VI.

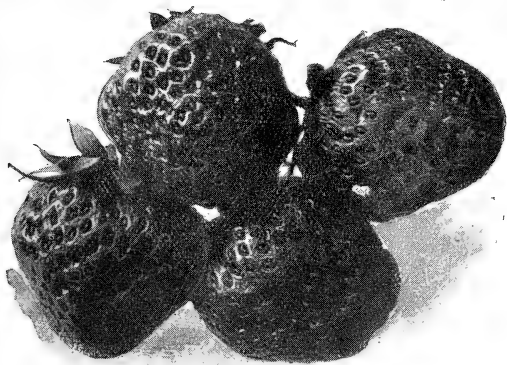
WARFIELD.—A very valuable market berry, though rather tart for home eating. The plant is small and of fragile appearance, but makes a thick matted bed, and bears abundantly. Exceedingly productive, of dark, glossy-red berries, with yellow seeds, which carry well to market and sell well. It is a strong rival of the Crescent, and has superseded it with many growers. Shown on colored Plate IV.

CRESCENT.—The most prolific and best known of strawberries. Thought by some to have run out, but will hold on while a good many new ones die. The plant is light and slender, but healthy and vigorous. The berries are rather small, roundish conical, slightly depressed at apex, of dull scarlet color; light flesh; sub-acid, with spicy flavor; season, early to late. It is often called the poor man's berry, because it is sure to yield fruit under adverse conditions. Shown in colored Plate V.

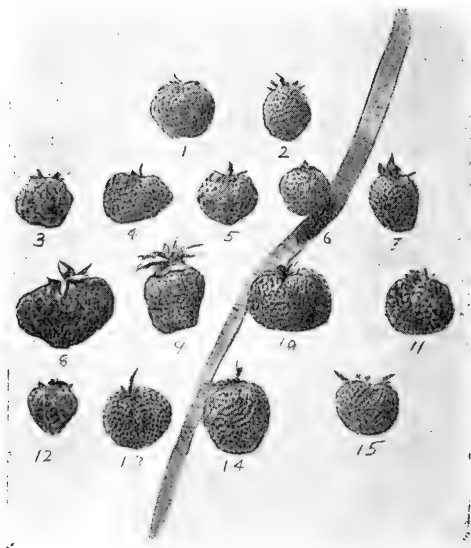
GANDY.—This is one of the best varieties ever introduced. The plant is large and healthy, and vigorous, with thick, dark green foliage, bearing very large, roundish conical, solid red, finely-formed berries

There is no finer berry to carry to a distant market than the Gandy, and none presents a finer appearance. It is not only large, but uniform in size, perfect in shape and color, and ripens evenly. In color it is a dark crimson, the flesh pale salmon. The plant must have an early start in the spring to produce a full crop the next season. A group of Gandys, all grown on one plant, is shown opposite the title page of this book.

MUSKINGUM.—A small, fairly vigorous plant, a little slow to start, of medium green foliage. Very productive of globular, dull scarlet berries, of medium size, with firm red flesh and of superior flavor. A good table berry, but a little tart. I believe the Muskingum has come to stay, and therefore recommend it for general trial. Shown in colored Plate VIII, and also engraving. Of the above, five are staminate and five pistillate.



GROUP OF MUSKINGUMS
A variety of great merit



SOME POPULAR BERRIES

- | | | |
|--------------|----------------|------------------|
| 1 Saunders | 6 Van Deman | 11 Splendid |
| 2 Leader | 7 Jessie | 12 Wilson |
| 3 Lady Rusk | 8 Edgar Queen | 13 Beverly |
| 4 Manchester | 9 Parker Earle | 14 Ignatum |
| 5 Warfield | 10 Bubach | 15 Windsor Chief |

CHAPTER XVI.

TEN OTHER GOOD VARIETIES.

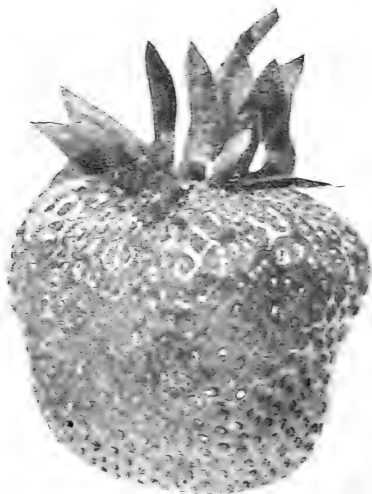
The best is none too good for us.—TIM.

UNDER this head I could make a very extended list, but will again select ten sorts that in my judgment are most worthy; but it must not be understood that all others are condemned. Varieties not mentioned here doubtless have great merit in some localities, and under special conditions that suit them, but I deem it best to confine myself to a short list to prevent confusion and uncertainty in the minds of many beginners in berry culture who will consult this book. As in the previous chapter, staminate will be in large type and pistillates in small type.

PEARL.—A vigorous grower; fruit firm, of fine form and color, like Parker Earle and Haverland, but of better quality, and is a good cropper; for a market not too distant it is excellent; and I know of no better home berry. Shown in colored Plate III, and in engraving of a box filled with fruit on page 25.

JUCUNDA IMPROVED.—Old strawberry cultivators do not need to be told that the Jucunda was one of the most beautiful and delicious of strawberries, and that it would only succeed in a few exceptional places. Jucunda Improved seems to possess all the good qualities of the original, while it succeeds on almost any good soil. Foliage strong and healthy; berries conical and very regular; color, brilliant crimson; flesh firm, good shipper. For family use or fancy market it is recommended. Shown in colored Plate XI.

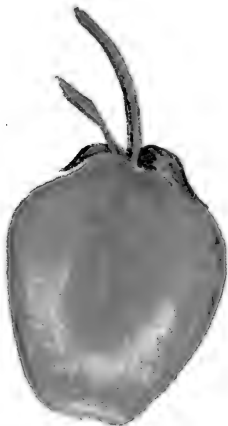
CRAWFORD.—Another of John Little's berries. It is a heavy, stocky-growing plant, with broad, leathery, dark green foliage, moderately productive of very large, roundish conical berries, glossy crimson, with bright yellow seeds, light flesh and good quality : not so valuable as the Saunders to grow for market because less prolific, but excellent for the amateur garden. See engraving.



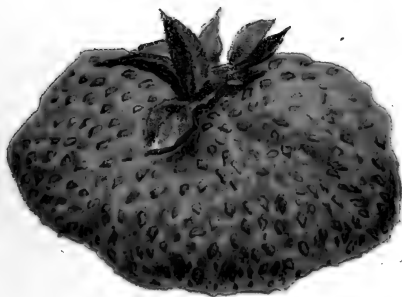
A FULL GROWN CRAWFORD

EDGAR QUEEN.—A vigorous, thrifty plant, with broad, heavy leaves, pale green in color : very productive of large, roundish, obtuse conical berries : bright scarlet : white flesh of fair quality. Shown in colored Plate V.

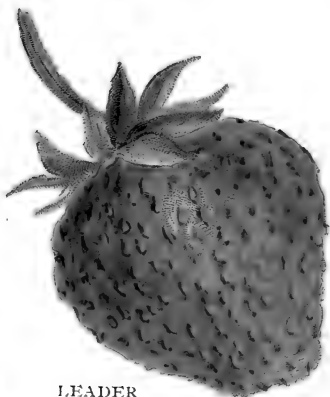
PLATE VII.



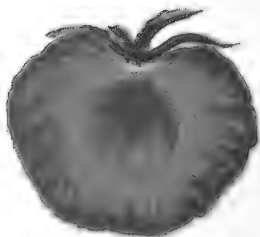
PARKER EARLE



BRANDYWINE

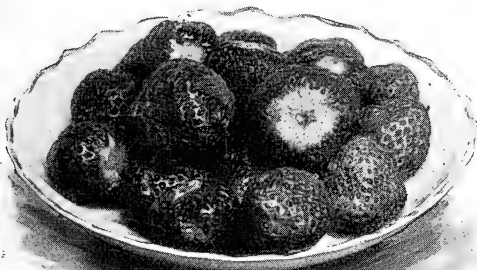


LEADER



MUSKINGUM

BEDER WOOD.—Moderately thrifty growing plant of Crescent type; very productive of medium, roundish, dull scarlet berries, with white flesh; moderately firm; sweet but insipid. Seems to give fair satisfaction where tried, but I would not plant it for market. Shown on colored Plate X.



DISH OF BEDER WOODS
Hard to Beat

BEVERLY.—A vigorous, upright grower with heavy foliage of the Miner type; medium green; very productive; large, irregular, roundish or obtuse conical berries, red color, similar to Miner; deep crimson-white flesh and good quality, although somewhat acid and not firm; bears a long time, holding out well. Shown on colored Plate IX.

SEUSTER'S GEM.—Medium growing plant, moderately productive of medium sized, conical, dull scarlet berries, with white flesh similar to the Haverland, very rich and sweet, but not solid enough for distant market. Season early to medium. Shown on colored Plate X.

LEADER.—Heavy, broad foliage, light green in color, productive of obtuse, conical berries, firm and of best quality. Early. Recommended as a promising, large, early berry, best adapted to rich, moist clay soil. Shown on colored Plate VIII.

IOWA BEAUTY.—Very strong, thrifty plant; glossy, dark green foliage; very productive of large, roundish, conical berries, of rich, glossy scarlet color; surface of many berries looks as if coated with a thick coat of varnish; seeds bright yellow; very attractive in appearance.

CUMBERLAND.—This is a fine old variety, one of the best for the home garden and good for near market. The plant is healthy and vigorous, and berries are a beautiful light red, of high quality, round, and very uniform in shape. A good pollenizer for pistillate sorts, and does well on poor soils; season medium.

ADDITIONAL NOTES ON VARIETIES.

BARTON'S ECLIPSE.—Growth, rank; foliage, light green; leaf stalks, long and stiff; leaves, large; fruit, large to very large, conical, rounding in large specimens; dark red, showy, medium firm; quality, fine; a fairly good market berry, though hardly of sufficient merit to warrant its showing on colored Plate VI.

GLENDALE.—A fine old berry that seems to have lost ground in public estimation, probably through neglect and careless culture. It is late, prolific, fair size, and if well grown, sells well. Whoever needs a late market berry should give it a trial. Shown on colored Plate IX.

FELTON.—Of rank growth ; somewhat of Sharpless type ; good bearer of very large, soft berries, not suitable for market ; not recommended except to give the family some prize berries. Shown in engraving of four berries in a tumbler ; or, trying to get in.



A NOTABLE QUARTETTE
Too big for this tumbler

BELMONT.—This is certainly one of the best amateur berries ever grown in Massachusetts ; needs rich, moist soil and good culture. A well-grown Belmont is one of the best looking, best eating and best selling berries known.

MICHEL'S EARLY.—One of the earliest varieties grown. The plant is a very robust grower, strong and healthy, although plant is rather small; one of the best of the early pollenizers, as it blossoms early and late. Moderately productive of uniform, small sized berries of good quality; flesh, soft, nearly white; roundish conical, dull scarlet in color.

JESSIE.—A good pollenizer for Bubach and Haverland. The strong points of the Jessie, according to A. I. Root, are that it is exceedingly early, of large size, and that its red cheeks, reminding one of a ripe peach, make it bring the very highest price. The berry is sweet and holds on well to the last. Its disadvantages are that if the soil is not just to its liking it gets feeble, and does not bear much fruit, and its blossoms are likely to be injured by frost.



PLATE IX.



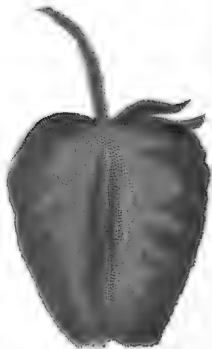
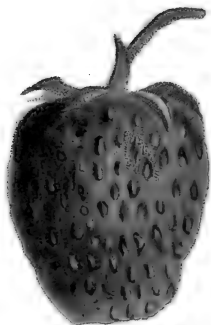
BEVERLY



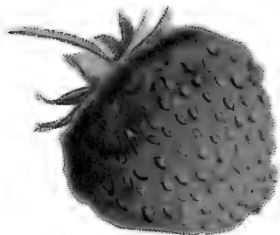
GLENDALE



BEVERLY



SHUSTER'S GEM



BEDER WOOD

CHAPTER XVII.

NEWER VARIETIES ON TRIAL.

Try all things and hold fast to that which is good.—PROVERB.

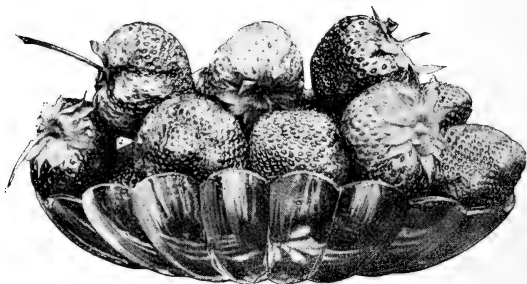
THERE are many for this list, and not a few which are pretty certain to come to the front in the near future and take their places in the first rank.

There never was greater activity among berry-men than at present to originate and introduce new seedlings, and I am glad that it is so, for this is a worthy work and must result in great good. If they will but give us one variety of merit annually, their enterprise will be justified and they will deserve the thanks of their generation, so I wish them abundant success in their labors. I am indebted to J. H. Hale for some of these descriptions of new berries from his trial bed. As before, staminate in large type and pistillate in small type.

DAYTON.—A very vigorous plant with broad, heavy, pale green foliage that protects both bloom and fruit; producing very large, conical scarlet berries, with yellow seeds, white flesh, especially at the centre, which is only moderately firm; very sweet and mild in flavor, but probably best adapted to sandy soil; ripens early. Shown in colored Plate I.

HALLIHAN.—A vigorous growing plant of the Crescent type, although having broader, thicker leaves; wonderfully productive; of medium sized, obtuse conical berries; dark, glossy scarlet with white flesh; moderately firm; sub-acid of high flavor; more productive and averaging much larger than Crescent. Shown in colored Plate II.

BRANDYWINE.—This is a very promising new variety originating near West Chester, Pa., supposed to be a cross between Cumberland and Glendale, and to be introduced by Mr. Crawford. I have seen the berry and am highly pleased with it. The plant is thrifty, vigorous, throwing out abundant runners; the fruit is large, of Glendale color, and has large calyx, somewhat irregular but not to hurt; it ripens evenly and is red inside; flavor good, but will be best as a market variety as it is very handsome and solid. I hope it will prove an addition to the short list of large, late, firm varieties. Shown in colored Plate VII, and engraving of dish of fruit.



A DISH OF ROYAL BRANDYWINES

MARSHALL.—Strong growing plant, with broad, heavy, dark green foliage, moderately productive of large, beautiful, quite dark red berries, with yellow seeds; flesh very dark red, rich and of high flavor; not likely to prove popular for market, but promising for amateurs as an exhibition fruit. Should have rich, moist soil.

BANQUET.—Moderately vigorous plant of the Chas. Downing type, yellowish green foliage, moderately productive of conical berries ; light, pale red ; white flesh, very rich and sweet and exceedingly high-flavored, like the native berry of the fields. I have not grown the Banquet, but have sampled it and found the quality good. The fruit is small and it is not a market berry. The color inside and out is shown in colored Plate III.

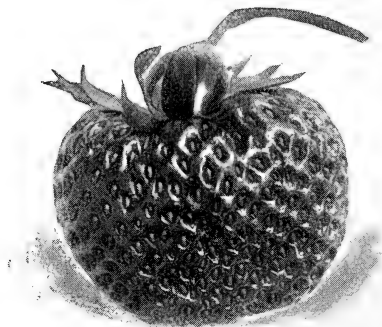
TIMBRELL.—A much praised new variety that has failed to come up to expectations in many places, succeeding well in others. The plants last year with me were weakly, this year seem strong enough. Dark green foliage, much like Bubach ; berry of firm, even form, large, rounded, dark red, and mottled white and pink ; firm, with red flesh and late. Will probably not prove to be a good market berry. It will take another season or two to fix its place, and I hope it has come to stay. Shown in colored Plate IV.

MARY.—A stocky growing plant with many fruit crowns, productive of large, roundish conical, dark, glossy crimson berries ; very red at the centre ; acid and flavorless ; productive and late. I am inclined to think that this will prove a good market berry. Shown in colored Plate XII.

PHILLIPS.—Moderately thrifty plant, somewhat of the style of the Haverland ; moderately productive of roundish, conical (and often very conical), glossy, scarlet berries, with pink flesh ; very large, rich and sweet. Shown in colored Plate XIII.

MEEK'S EARLY.—Vigorous growing plant, with broad, tough, leathery foliage, with a slight gloss ; moderately productive of small, roundish conical, dark red berries with red flesh ; quite acid.

Besides the above there are Wolverton, a promising large berry, one of John Little's, Orange County, originated by Mr. Timbrell; Van Deman, an early pistillate of promise; Belmont, a popular and most beautiful large amateur berry, of Massachusetts; Columbus, a large, prolific variety; Glen Mary, of E. T. Ingram, the originator of the Brandywine; Rio, Belle and Equinox, of Cleveland Nursery Co.; Wm. Belt, very large; Annie Laurie, by John F. Beaver, of Dayton, O.; Annie Forest, and Fountain, a rather late staminate, by D. Brandt, Bremen, O; but this is by no means all of the new candidates for popular favor.



ANNIE LAURIE
A promising new variety

CHAPTER XVIII.

WHAT THEY SAY.

THE BEST FIVE FOR MARKET.

What everybody says must be true.—PROVERB.

HERE we have it put down in black and white, a list of the most valuable varieties for market by many of the leading berry growers in the United States. From this it will be seen that certain sorts are popular in widely separated sections, and that good qualities in a variety go with it wherever they are given a chance.

H. S. TIMBRELL Enhance, Timbrell, Barton's Eclipse, Parker Earle and Lovett. N. Y.

A. P. SAMPSON Glendale, Bubach, Haverland, Miner's Prolific and Sharpless. Mass.

W. C. WILSON Warfield, Crescent, Lovett, Parker Earle and Bubach. Ill.

ROBT. H. GILLIN Gandy, Pearl, Saunders, Haverland and Bubach. Pa.

Downing, Bubach, Sharpless, Cumberland and Beder Wood WM. D. BARNS are probably the most valuable. Haverland, Jessie, Crescent, Miner's and Michel's Early are nearly as popular. N. Y.

A. G. SHARP Bubach, Haverland, Warfield, Parker Earle and Mammoth Beauty. Mass.

A. W. SLAYMAKER Smetzer Early, Haverland, Lovett, Greenville and Timbrell. Del.

E. W. REID In the order they ripen: Dayton, Haverland, Greenville, Bubach and Timbrell. O.

GEO. F. BEEDE	Beverly, Warfield, Bubach, Haverland and Lovett.	N. H.
J. R. HAWKINS	Michel's Early, Van Deman, Timbrell and Cumberland.	N. Y.
E. M. BUECHLY	Greenville, Haverland, Warfield, Bubach and Lovett.	O.
S. R. ROGERS	Bubach, Haverland, Sharpless, Parker Earle and Jessie.	O.
J. C. EVANS	Warfield, Bubach, Windsor Chief, Parker Earle and Greenville.	Mo.
EDWARD W. CONE	Warfield, Michel's Early, Gandy, Pearl and Victor Hugo.	Wis.

Crescent, Greenville, Shuster's Gem, Speece, Warfield, of the S. W. GILBERT imperfect flowers, with Capt. Jack, Comet, or Jessie cover the whole field of usefulness here, unless we want a later berry, then would plant Gandy. Mo.

GEO. A. DAVIS	Haverland, Parker Earle, Bubach, Lovett and Warfield.	N. Y.
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JOHN LITTLE

The large berries are most profitable
JOHN LITTLE here, namely : Wolverton, Saunders, Shuster's Gem, Nehring's Gem, Gillespie, Bubach and Robinson.
Can.

WM. JACKSON Bubach, Wolverton, Saunders, Annie Forest and Jersey Queen. Ill.

WM. HOOVER Parker Earle, Jessie, Bubach, Enhance and Warfield. Col.

GEO. J. KELLOGG	Van Deman, Warfield, Lovett, Crescent and Enhance.	Wis.
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R. D. MCGEEHAN	Warfield, Beder Wood, Robinson, Parker Earle and Crescent.	Ia.
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GEO. F. WHEELER	Crescent, Sucker State, Lovett, Bubach and Hatfield.	Mass.
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T. J. DWYER Michel's Early, Bubach, Parker Earle, Gandy
and Timbrell. N. Y.

A. M. PURDY Michel's Early, Warfield, Haverland, Shuster's
Gem and Bubach. N. Y.

BENJ. M. SMITH Warfield, Beverly,
Timbrell and Marshall. Mass.

Haverland, Warfield, Bubach, Cres-
EUGENE WILLETT cent, and Beder
Wood. N. Y.

Beder Wood, Leader and Marshall
GEO. F. WHEELER for early; Gen.
Putnam and Belmont for late. Mass.

J. H. HALE Greenville, Bubach, Day-
ton, Lovett and Windsor. Conn.

W. W. FARNSWORTH Crescent, Lovett, Gandy, Warfield
and Greenville. O.

G. S. BUTLER Bubach, Haverland, Warfield, Lovett and Parker
Earle. Conn.



BENJ. M. SMITH

SUMMARY REMARKS.

In the above we have thirty berry experts who name five of the best varieties for market purpose, and these gentlemen, it will be seen, are widely scattered over the country. It appears that nineteen of them name Bubach; fifteen, Warfield; thirteen, Haverland; ten, Lovett; nine, Parker Earle; eight, Crescent; six, Greenville; three, Beder Wood, and one, Barton's Eclipse, these appearing to be the most popular sorts. Therefore, a beginner in strawberry culture would not get far off his bearings if he were

to select the five which have the most votes, viz.: Bubach, Warfield, Haverland, Lovett and Parker Earle. I should prefer Saunders to Lovett, and Greenville to Parker Earle.

Some growers make no distinction between the varieties intended for market purposes and those for the family to use; nevertheless, I believe that different sorts should be selected, because it is not always the sweetest berry that will yield the greatest number of quarts, nor carry to market in the most salable condition. On the other hand, the variety that is most desirable for the family to feast on may be a light yielder, and perhaps of poor color and soft in texture. Buyers in the towns are attracted by size, color and freshness and are not very particular about the flavor, while for the folks at home nothing is too good for them. A large number of varieties both of old and new introduction, that have high merit as a home fruit, will not carry to market in good order, and should not be placed in the market list.



CHAPTER XIX.

BRIEF ANALYSIS OF VARIETIES.

IT may be of advantage to beginners, who have not made a study of the different varieties and know but little about them, to give a classified list, indicating prominent characteristics, as below:

LARGE.

Sharpless, Greenville, Belmont, Saunders, Crawford, Edgar Queen, Bubach, Jucunda Improved, Gandy, Leader, Jessie, Brandywine, Felton, Mary, Iowa Beauty and Wm. Belt.

EARLY.

Leader, Beder Wood, Crescent, Michel's and Meek's Early, Dayton and Haverland.

LATE.

Gandy, Eureka, Glendale, Parker Earle, Windsor, Equinox and Timbrell.

QUALITY.

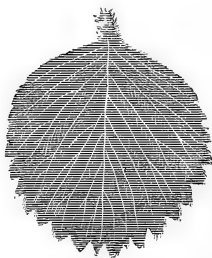
Pearl, Banquet, Cumberland, Crawford, Belmont, Dayton, Meek's Early and Iowa Beauty.

MARKET.

Pearl, Gandy, Haverland, Saunders, Bubach, Crescent, Greenville, Parker Earle, Warfield, Leader, Muskingum, Lovett and Brandywine.

The strawberry plant indicates by its leaf what is the shade of color, size, shape and quality of the berry.

The lighter the color of the leaf, the lighter you will find the color of the berry ; the darker the leaf, the darker the berry. The leaf also indicates the size of the berry. An irregular berry is indicated by an irregular leaf, a round berry by a round leaf, a long berry by a long leaf. Leaves on the same plant will vary considerably, no two are alike, but their general form will be the same. Also the relative productiveness of different varieties of strawberries can be told by the number of serratures or saw teeth on the leaf. The greater the number of serratures the greater the number of berries will be produced on an individual plant.



Round Leaf Indicating
Round Berry

CHAPTER XX.

THE OLD STRAWBERRY BED.

No matter what they tell you, plow up the bed after getting one crop from it.—TIM.

IT is a mooted question whether it is worth while to maintain the bed after one crop is taken off. I will first give the views of the brethren and then my own.

J. H. HALE If any one is bound to do so foolish a thing as to fruit a bed the second season, etc. Conn.

JOHN LITTLE Turn the plants under after the picking is done. Can.

Burn over. Plow furrow on to the rows from between the A. M. PURDY rows; harrow lengthwise of the rows and then crosswise, getting fresh soil well worked into them. N. Y.

We have kept valuable varieties two or three years. Our mode is to simply keep weeds out before, during and after bearing, always. Strawberry beds that are intended for another year's fruiting should be mowed as soon as the season is M. A. THAYER over; raked and then burned. The rows are then narrowed down by cutting in between the rows with a spade and harrow, removing the centre beds. After this is done it is hoed, weeded and cultivated the same as a new bed.



M. A. THAYER

Wis.

Mow off the growth of weeds and leaves soon after fruiting; clean out paths and beds. It is possible to burn off the rubbish GEORGE F. BEEDE if dry, but it requires care and experience to make a success of it. Too much heat will kill the plants, too little will not kill the weeds and grass. When rightly done it destroys all insects, and is a great help to future culture. N. H.

Plow out the middle of the row with a plow ; harrow cross-wise until furrows are filled, then weed. Plow should be wide enough to leave a four inch strip on each side. This gives double the number of rows for next year which must be kept underway. III.

Never try to get fruit the second season. Plow beds immediately after picking the first crop. No use ; it costs too much. N. H.

SAMUEL MILLER Plow under and start a new bed. Mo.

On old strawberry beds try Dr. Loring's motto, " A short life and a merry one," but do not discourage boys or men by trying to patch up an old strawberry bed. Mass.

After fruiting throw dirt in a ridge on to the centre of the row with a one horse plow. Let lie a few days, cultivate down level, and cross the rows with an Acme harrow. III.

GEORGE A. DAVIS Plow it up ; it never pays to keep it for fruiting. N. Y.

SUMMARY REMARKS.

Since it costs less to grow strawberries on a new bed than on an old one, and the berries are finer, it is reasonable to conclude that it is best to plow down the old bed at the end of the fruiting season, according to the weight of advice given above ; and as it appears an old bed is a prolific breeding place for fungi and insect pests, and one cause of plant deterioration, doubtless, as a rule, a thorough plowing, turning everything out of sight, is the best thing to do with the old strawberry bed.

However, there may be circumstances that make it best to hold the patch over for another crop, and

where this is to be done the methods described above are well conceived and will usually bring fair results. Of the ways given, I like the plan of Mr. Purdy and Mr. Goodrich best, wherein the furrows are turned from the alleys over upon the rows, which are then well harrowed, sufficient to uncover the plants. This gives me better results than plowing away from the rows.

The practice of first mowing, then burning the dead leaves and weeds, is a good one, if the burning be carefully done as suggested by Mr. Beede. A very hot fire over the plants will kill them. It is my custom to plow the old bed down and plant to sugar corn July 1st, or to late peas August 10th, for market ; or, a crop of potatoes may be grown where this crop does well planted so late.



CHAPTER XXI.

DO VARIETIES RUN OUT.

That depends.—TIM.

THERE seems to be a difference of opinion as to whether or not varieties run out, and it is interesting to read what my friends say on the subject.

A. M. PURDY Setting plants from old, worn out, diseased plantations. N. Y.

Some varieties run out, others do not. Careless selection in propagating plants for new beds is the main cause for vigorous
GEORGE F. BEEDE varieties running out. Seedlings as a rule show vigor for a few years, which does not hold out. N. H.

I am not sure that varieties will run out if they receive
A. I. ROOT proper care, and new settings are used in planting each year. O.

M. A. THAYER Strawberries run out from lack of care and proper mode of production. Wis.

Varieties do not run out except by taking plants from old
H. S. TIMBRELL beds. Keep setting good strong plants that have never borne berries and they will always be the same. N. Y.

I do not think they would run out if care were taken to plant
EUGENE WILLETT strong, healthy plants from new beds every year, and given change of soil once in four or five years. N. Y.

W. W. FARNSWORTH Partly, perhaps, from defective soil, and partly from taking from beds that have borne fruit. O.

Varieties do not run out, they simply fail to succeed, and be perfect except under very favorable conditions of soil and plants.
T. J. DWYER In this way they are justly decried "out" until the stock of such varieties becomes exhausted and cannot be had for the reason it is no longer propagated. N. Y.

It seems to be the law of nature that plants not propagated from seed should deteriorate. The strawberry is no exception EDWARD W. CONE to this rule, and growers find more compensation in giving attention to new varieties than in trying to improve the old. Wis.

Varieties do run out but the reason is not apparent. It seems to be an established fact that the nearer the plants are A. M. PURDY to the seed bed the greater their health and productiveness. Poor culture may have something to do with it, but fungous diseases do much more to weaken certain varieties. N. Y.



A. M. PURDY

By selecting the most vigorous plants J. G. BUCHANAN each year to propagate from, plants will never run out. O.

I use the first plant on the runner for my new beds. In fact I will not plant anything else, and the runner must be from a S. R. ROGERS vigorous mother plant. By following this rule you can improve the varieties instead of having them run out. O.

A. D. WEBB I have two varieties fruited now seventeen years, with no perceptible deterioration either in plant or fruit. Ky.

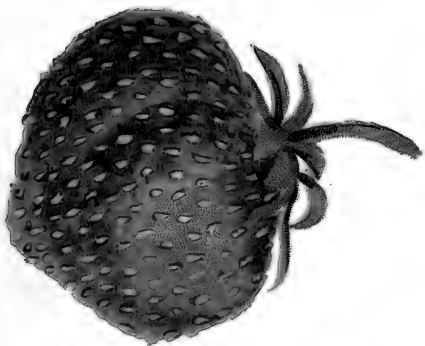
I think it is the trouble with the fellow that propagates them. J. H. HALE Always take plants from new beds, and above all things do not let them mat too thickly in the beds. Conn.

SUMMARY REMARKS.

For my own part I do not believe varieties will run out if proper intelligence is given their propagation by runners and their after culture. Carelessness and neglect and ignorance on the part of the growers, and enterprise in those who have made it their duty to introduce new varieties, are the main causes of

strawberry deterioration; or, they run out because plant nurserymen cease to sell them, and because improvement is the order of the day, and new and better kinds are discovered or propagated. It is time a variety had run out, though it may not have deteriorated in the least, when something better has come in. One of the greatest errors made by strawberry growers is the discarding of valuable kinds before they give them a fair trial and learn just what treatment is best for them, to take up with some new and costly variety, which, in due time, will go out in the same manner, perhaps being inferior in every way to the old sorts. In this way many have already discarded that wonderful berry, the Gandy, which succeeds admirably where brains are applied to its culture, and the required conditions of a crop are complied with.



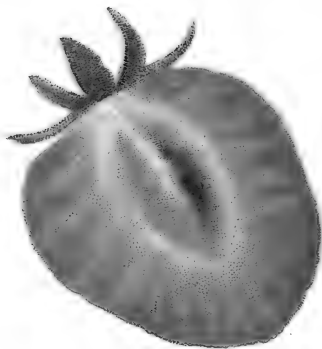


JUCUNDA IMPROVED





MARY

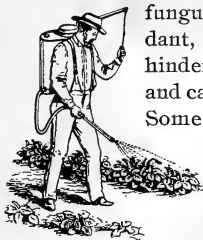


CHAPTER XXII.

LEAF RUST AND INSECTS.

To avoid serious effects from either never have an old bed.—TIM.

RUST or blighting of the leaf of the plant is one of the greatest obstacles in many sections to successful strawberry growing. This is not a disease of the plant itself, but the growth of a parasite or fungus upon the leaf, which, if abundant, does great injury to the plant, hindering its growth and development, and causing a failure of the crop of fruit. Some varieties are more liable to rust than others, and the trouble appears to be greater in some neighborhoods than others. The reader will find below some interesting expressions on this subject.



SAMUEL MILLER The Bordeaux mixture, if used as a spray, will prevent leaf rust. Mo.

Beds that are only fruited one season are not usually troubled
G. S. BUTLER with rust or blight. I use Bordeaux mixture, if I see trouble. Conn.

Rust may be effectually checked by spraying, but prevention is better than cure, and there are so many varieties not subject
EDW. W. CONE to this disease that one can easily choose those not liable to it. On ground treated to barn-yard manure, plants are much more liable to rust than where a commercial fertilizer is used. Wis.

CHARLES WRIGHT Have tried nothing to cure leaf blight; usually secure such varieties as are not subject to it. Del.

Plant iron-clad varieties, those that do not rust. Such
GEO. F. BEEDE varieties are among the most productive, and
 the best every way. N. H.

S. W. GILBERT The Bordeaux mixture will prevent rust. Mo.

BENJ. M. SMITH If possible, put out the kinds that have not
 a tendency to rust. Mass.



T. J. DWYER

I do not know what will prevent leaf
 rust. It rarely ever attacks a bed of plants
T. J. DWYER until it has become old,
 and should be plowed under; or a bed
 that is on land that has been used continu-
 ously for strawberries. N. Y.

Burning over the beds is the best I can
 mention. If bothered with rust I would
E. W. REID not allow a bed to remain
 over one year, and would not plant the
 same ground more than once in five years.
O.

Have had no experience doctoring for leaf rust. Avoid by
 planting new beds every year, with strong, healthy plants from
 new beds. If this course would be taken with our growers in
 general, we think there would not be the trouble now com-
EUGENE WILLETT plained of. An old strawberry bed makes
 as near a perfect breeding place for insects and fungi, as it is
 possible to conceive of. Plow them up as soon as through pick-
 ing, and plant to potatoes. These do well after strawberries,
 and your field is in good condition for next spring's setting of
 strawberries. You will see leaf blight in most of heavy yielders
 after producing their crop. The remedy is to set new beds. N. Y.

The fungi which turns the leaves red in mid-summer we
J. W. ADAMS avoid by planting only such kinds as are not
 subject to that malady. Mass.

SUMMARY REMARKS.

Leaf rust first shows itself upon the leaves as
 purplish or reddish spots; these enlarge, and the

centre tissues being destroyed, they change to a yellowish white color. The spots are often so numerous as to destroy the leaves. The fungus also works upon, and does most injury to, the flower or fruit stalks, and as a result the berries wither and dry up.

The remedy is in planting varieties least subject to attack, to set out only strong, healthy plants, from beds that have not fruited, give careful cultivation, fertilize liberally, and keep a bed in fruiting only one year.

Application of Bordeaux mixture, prepared in the usual way, using three pounds of copper sulphate, the same of fresh lime, and thirty-two gallons of water. Applying early in the spring, and again after the blossoms fall, will hold leaf rust in check until after the crop is gathered. For the new bed apply as often as there is any sign of rust. For an acre, or less, the knapsack sprayer will readily do the work—if one can carry it by proxy.

There are several insects that have special fondness for the strawberry plant, though I have never been bothered with any. The root-borer is about a half-inch long, whitish in color, and bores into the crown in the fall, remaining all winter. The remedy is to dig up and destroy the affected plants.

The crown-borer is a white grub, one-fifth of an inch long, with yellow head; the mature insect is a curculio. Remedy: Mow the field after fruiting, and burn it over.

The leaf roller feeds on the leaves, rolling them up. Burn.

Root lice often appear in great numbers, feeding on the roots of the plants. Plants received from

nurseries should always be examined, and, if lousy, should be dipped in kerosene emulsion.

It is best to be watchful of all destructive insects, and where any of them are troublesome, change plants and ground, burning the bed over after fruiting, and plowing down.

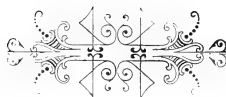
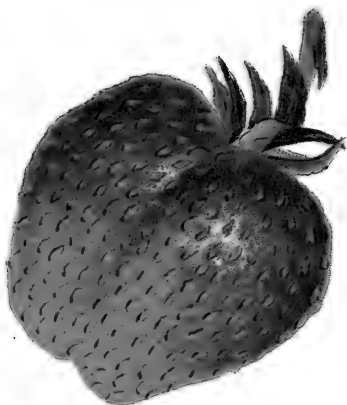


PLATE XIII.



PHILLIPS

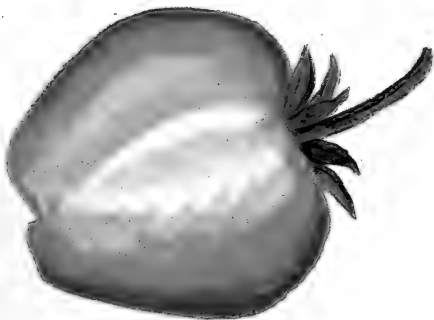
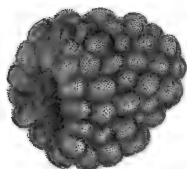
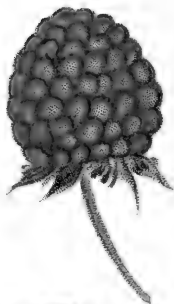


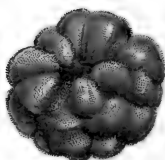
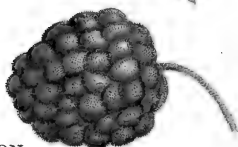
PLATE XIV.



CUTHBERT



LOUDON



ROYAL CHURCH

CHAPTER XXIII.

PICKING AND MARKETING.

Correct picking helps ready marketing.—TIM.

WE come now to an important branch of our subject, for picking and marketing are half the battle, so it will require three chapters to get it all in. I begin with a statement of the method of picking of one of the most successful growers I know of.

Procure careful pickers. The berries should be picked with short stems and not rehandled after being placed in the boxes. The boxes should be well filled to prevent the berries from jolting. They should be cooled before shipping. The ROBERT H. GILLIN plants should be so handled as to leave the foliage in the same position as before picking. This treatment secures protection to the unpicked fruit and the berry season will last longer.



ROBERT H. GILLIN

Pa.

A. G. SHARP Pick often, use new baskets and clean and painted crates, and get them to market as quickly as possible.

Mass.

Strawberries should be picked at least once every twenty-four W. F. ALLEN, JR. hours, in the cool of the evening as near as possible, and put up in clean, neat packages. Where and how to market will depend on the section where they are grown. Md.

Strawberries should be picked off the vines with stems and not pulled off without the hulls. If picked with stems a better M. A. THAYER appearance is given them and they stand a much better shipment. Have standing orders for your fruit, and in sending on commission send to a good reliable firm. Wis.

Pickers should pick with stems on, especially if fruit is large.
CHARLES WRIGHT This is hard to get done, especially in a field where several hundred pickers are at work. Del.

A. M. PURDY For long shipments pick every day to have firm fruit. N. Y.

GEORGE F. BEEDE Pick in the cool of the day. Small markets near home are the best. N. H.

The fruit should be graded in picking, being careful to pinch off the berry rather than pull. In topping the basket the berries
E. W. REID should all be turned with the stem down and point up. It makes the fruit more attractive and commands better prices. O.

ANDREW WILLSON Be careful to have the berries clean and as uniform in size as possible. O.

A. W. SLAYMAKER Pick only the best and market in clean packages. Del.

Build packing shed in centre of the patch. Have an overseer
BENJ. BUCKMAN of pickers to every twenty to forty pickers. Use carriers containing six contingencies. Some send their berries too far. Ill.

BENJ. M. SMITH Pick early in the morning, and get them to the consumer as early as possible. Mass.

Picking should be done as early in the day as possible. None
T. J. DWYER but well ripened fruit should be put on the market. It pays well to grade fruit, discarding that which is small, irregular or soiled. N. Y.

Have your baskets and crates neat and clean ; fill baskets so they will go in the market slightly rounded. A few fresh leaves laid on the top of the boxes sometimes add to their attractiveness.
EUGENE WILLETT Do not hide all the berries but be sure they do not all come on top. If you have not private customers find an honest commission merchant and stick to him ; and if you deliver your own fruit, stand a few hours in front of his store while your stock is being disposed of. It will pay. N. Y.

In wet weather, pick every day; in fair, every other day. Keep three grades, each by itself. First hunt up persons that are willing to pay a fancy price for a fancy article, and they are R. D. MCGEEHAN to be found, lots of them. Sell the second to grocers or fruit stands, and the third sell at home for what you can get for them or use yourself, or feed to hogs. Take to a cool, airy cellar as soon as they are picked. Always ship in the evening if possible, so they will travel during the night. Ia.

GEORGE J. KELLOGG Pickers by the day are most profitable; they pick better and less fruit spoiled and more satisfactory. Wis.

G. S. BUTLER Pick dry; handle as little as possible; pack at once and market early. Conn.

Pickers should never be allowed to walk over the beds or handle berries except by the stem, which should be pinched off one-half to three-quarters of an inch from the berry and the berry carefully placed in the boxes. Good superintendence in the field is better than sorting and packing in the packing house. Select the best method of transportation rather than low rates. Miss.

WM. HOOVER Berries intended for shipping long distances should be but half ripe, and all small berries and culls thrown out. Col.

WM. JACKSON I pick no small or unsound berries. Ill.

I do not object to picking berries when J. R. HAWKINS wet, they will soon dry when put under cover if there is a good circulation of air. N. Y.

Be as honest as you can. Do not allow pickers to put any trashy, rotten or green berries in the box. To avoid this I find W. C. WILSON that it is absolutely necessary to have a superintendent in the patch and directly among the pickers. Use clean new boxes. We use nothing but gift boxes here, costing \$2.10 per thousand. Ill.

A. P. SAMPSON We pay two cents a quart. Each picker has a stand holding six boxes. Mass.



J. R. HAWKINS

I charge my pickers to pick nothing but first-class berries for
S. R. ROGERS market; all inferior berries to be put in a box
 by themselves. O.

Sort into two grades and aim at uniformity in every box
EDWARD W. CONE and every package. Plant firm berries
 both for home and distant market. Wis.

GEO. W. ELVINS Do not try to ship immediately after a rain.
 N. J.

The fewer pickers one can get along with the better. Use
 men and women; young boys and girls are no good. I prefer
 young men, the women's dresses drabble too much; if women,
GEORGE Q. DOW then I want them to wear a sort of bathing
 suit. Never send a basket to market the second time; use new
 ones and clean crates. Do not deacon your fruit, but have it
 alike all through. Sell your own fruit and keep out of the hands
 of the commission men. N. H.

We use six basket carriers, Handy's. The pickers sort the
 berries, put in the small, soft or otherwise inferior fruit in one
E. G. TICE basket, while the rest are put in the other baskets.
 The pickers arrange the berries neatly on the top of each basket,
 thus presenting a neat appearance. The culls, or seconds, are
 sold to peddlers to do with as they choose. N. Y.

We pick our berries every day in the berry season, there is
 no other way to do it. You cannot pick a strawberry that is two
 days old and send it to market. It must be picked when it is
 exactly at the right stage for picking, and if you take care to do
 that, you can ship them 1,000 miles if you want to. The condition
PARKER EARLE to which I refer is that which the berry
 has reached when it first begins to color. It is largely a question
 of variety, as some varieties will continue to change color and
 ripen after they are picked, while others will not. Of course the
 ones for shipping purposes are the ones that will continue to
 change. Ill.

CHAPTER XXIV.

PICKING AND MARKETING. (Continued.)

The ticket system and the punch must go.—TIM.

I FORMERLY used tickets or cards, containing numbers, and a punch, to keep accounts with pickers, but the past season I tried the system recommended by John M. Stahl, in the Farm Journal, and liked it so well that I would not think of returning to the old way. It works like a charm, the pickers are satisfied, and it is no trouble. I think Mr. Stahl had his plan, which is in use about Quincy, Ill., first printed in the Country Gentleman.

A bulletin board is erected just outside of the door of the receiving and packing room. For each day a paper is prepared, to be tacked on the bulletin board. Heavy book paper of the required size can be got at almost any job printing establishment. This paper is ruled with lines half an inch apart, and horizontal when the paper is on the board. Along the left margin there is a space ruled off for the numbers, next for the names of the pickers, and then a dozen or more spaces in which to put down the number of quarts brought in by each picker. (See cut). Every picker has a number. This is important; let the pickers be referred to by their numbers, not by their names.

1	Adams	5	6	6	5	5	27
2	Adams	5	5	6	4	5	25
3	Adams	6	5	5	6	6	28
4	Adams						
5	Adams						
6	Adams						
7	Adams						
8	Adams						
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

As each picker brings in a load, the number of quarts is marked in a space opposite the number of the

picker. As an indelible pencil is used, the pickers cannot accuse you of altering the record. As you put in the number of quarts in the presence of the picker, there will be no oversights or mistakes. The entire record is open to any picker at any time during the day when she comes to deliver berries. You can see at a glance how each picker is working; or, if you desire to know at any time how many quarts have been brought in you can foot it up in a minute.

Each evening the record sheet is taken down, folded, and the date, number of quarts picked, and whatever other memoranda may be desired, are endorsed upon it. It is then filed away. These sheets furnish a complete account of the season's picking. They also furnish valuable information for future use.

I have found it advantageous to supply each picker with a berry tray, on which his boxes, when filled, are borne to the picking shed. My trays were made by the following directions, and seem well adapted to the service required of them: For the ends, use inch strips three inches wide; for the bottom, four strips of laths; and for each side, one strip. No legs are needed. Keep the tray off the plants. A handle is made from half a barrel hoop, spanning the tray lengthwise, and tacked to the end pieces on the outside. This tray is designed to be made large enough



Berry Tray

to hold six one-quart boxes. Placing the handle lengthwise leaves the boxes easier to get at, and prevents the tray tipping. I only use these trays to put the boxes in after the pickers fill them, and not to pick in, though I believe many growers have the pickers to carry them

along while picking; but this jostles and injures the fruit, exposing it to the evil effects of the hot sun, and weights the picker. Especially if the sun be hot, near the middle of the day, it is best, after filling a box, to set it among the foliage, hid from the rays of the sun, until a tray load is picked, and then carry to the picking shed. The tray is worthless, except as a carrier after the boxes are filled.

If wanted for local markets, start picking at daylight, and have pickers enough so the fruit can be gathered and into the market before eight o'clock. For distant market, try to pick in the evening or in the morning after the dew is off the grass and yet before it is too warm. If picking must be done all through the heat of the day, plan some way to cool the berries. Pickers of mature years are best; and as a rule, girls are better than boys. Have a superintendent for every ten or twelve pickers to assign the rows, inspect the picking, etc. Each picker should be numbered and have a picking stand with like number J. H. HALE to hold four, six and eight quarts. Sort the berries as picked into two grades, and always use new, clean baskets made of the whitest wood possible. Fill rounding full with fruit of uniform quality all the way through. After they are picked keep away from the air as much as possible. Fruit, if dry cooled, will keep much longer and keep fresher if kept in tight crates. Ventilation in crates and baskets does more harm than good; to prove this, pick a basket of nice berries, put in a shady but airy place, and I will bet at the end of twenty-four hours the only bright and good berries will be in the bottom of the basket away from ventilation and light. Conn.

In picking, do not allow the pickers to touch the berries at all, but handle them by the stem, and lay in the boxes one by one as they are picked. Pick every ripe berry in the patch every day. Place enough green leaves over the berries to prevent their S. W. GILBERT being shaken around and bruised. The old idea that the strawberry should have plenty of air circulating over, under and through them, has been knocked into a cocked hat. Treat your customer so nicely that once a customer, always a customer. Mo.

Pay pickers at the end of the season, and pay those who stand by you after the berries get small a half-cent per quart more than transients. This will hold them together as long as TIM you want them. Let the last picking be for halves—half for you and half for the pickers. Small berries must stay at home; the markets want large berries. Use a spring wagon only to haul berries. Pa.

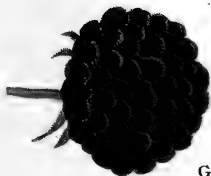
Berries should be picked, as far as possible, when the vines are dry; all soft berries thrown out. They should be handled as little as possible. Take a light hold of berry with thumb and finger, give it a little twirl, pulling from where the berry is fast to the ground. Never pull backwards, as you will split the stem H. S. TIMBRELL and destroy the young berries. In looking for berries never bear down on the foliage, but always run the hand under and lift up. In this way the foliage is kept in good shape. In the beginning of the picking season there should be great pains taken to preserve the foliage and green fruit. Women make the best pickers. Round up basket well, and market as near home as possible. N. Y.

I would pick the berries as soon as the people would buy, even though they were white on one side, and I would pick off every-A. I. ROOT thing in the shape of a berry, no matter whether it was sold, given away, or thrown away. Never let berries get overripe on the vines. O.

PLATE XV.



KANSAS

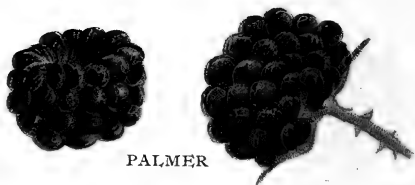


GREGG

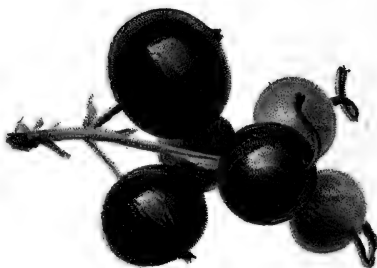


OLDER

PLATE XVI.



PALMER



BLACK CURRANT



LOVETT

CHAPTER XXV.

CONTRIBUTORS' PORTRAITS.

BIOGRAPHY.

I have always observed that the most generous, most intelligent, most progressive, most upright and most useful men are to be found in the ranks of those interested in horticulture, and too much honor cannot be done them by their fellow citizens.—TIM.

SCATTERED through this little book will be seen the portraits of many well-known gentlemen, living and dead, who are, or have been, prominently identified with the cultivation of berries, either for the fruit or for the propagation and introduction of fruit-bearing plants, and it gives me real pleasure to be able to present to the general public pictures of these honorable and eminent men; and at the same time to give the reader bits of their wisdom and experience in the berry business.

This gentleman was born at Newburgh, N. Y., in 1828. and lives near there now (at Middlehope). He is greatly interested WM. D. BARNS in fruit, and was a pioneer in the use of the Bordeaux mixture in the spraying of grapes. He contributes of his store of knowledge to the purpose of this book. Page 44.

Of this gentleman it can almost be said that he was "born in a berry field," having cultivated strawberries for over forty-one years, or since he was nine years old. He grows and takes to Phila-ROBT. H. GILLIN delphia, from the adjoining county of Montgomery, the finest strawberries ever seen in the Philadelphia markets, and he and his father have done this for over fifty years. His cousin, Oscar Felton, is famous as a fruit grower, and originated the Felton strawberry. Page 93.

Here is a gentleman who has contributed largely to the value and interest of this book. He was born in New Hampshire on a fruit farm, and has been deeply interested in horticulture all his life. He began to grow strawberries as a special crop in 1880, and has continued ever since, experimenting largely and exhibiting fruit at fairs in Massachusetts and Connecticut, which attracted much attention. He is ardently devoted to his work and his successes have been marked. He is ever ready to impart his knowledge freely to others, and I hear him spoken of as a worthy gentleman, doing a grand, good work, and honored accordingly by his neighbors and all who know him. He lives at Springfield, Mass. Page 14.



E. WILLIAMS

This gentleman was prominently identified with horticulture in his native state, N. J., until his death, which occurred in July last, in his sixty-fourth year. His name is honored throughout the country for the work he did, E. WILLIAMS not the least of which was his influence in establishing a new system of nomenclature of the strawberry, *i. e.*, the giving of feminine names to pistillate varieties. The idea being suggested by him was instantly adopted, and the reform meets with universal approval.

Here is one of the younger fry, having been born in 1863, at Seaford, Delaware, where he now conducts, with much skill, a nursery and fruit farm. He was superintendent of the Bureau CHAS. WRIGHT of Pomology at the Chicago World's Fair, in 1893, and has contributed some very practical suggestions to this book. With youth, energy, a quick intelligence, and a strong taste for horticulture, he will be heard from further in the good work he is engaged in. Page 48.

I am much pleased with this gentleman's contributions to this book—they are sincere, honest, intelligent, and of a very practical character. He it is who originated the celebrated Tim-H. S. TIMBRELL brell strawberry. He was born in N. J. in 1847. His health failing while in mechanical pursuits he turned his attention to berry culture, especially to seedling strawberries. His home is now in Orange County, N. Y. Page 40.

Born in 1834 in New York City, and mingling with the world as assistant in a publisher's office, and afterwards in the jewelry business in New York and St. Louis for forty years. Mr. **HAWKINS** then became intimately associated with Mr. Charles Downing, and he was well acquainted with the late Rev. E. P. Roe. He is the originator of the Banquet strawberry and has many other seedlings on trial. Page 95.

This gentleman was born April, 1846, and is, therefore, forty-eight years old. Previous to 1882, he was a travelling salesman, but, his health failing, he engaged in **BRANDT** farming at Bremen, Ohio, making the strawberry a specialty, and during the past twelve years fruiting and testing about 350 varieties, devoting much time to seedlings. He is the originator of the Fountain strawberry.



D. BRANDT

This name is well known in New England, where its owner has been prominent in horticultural circles for years. He it was who introduced the Beverly strawberry, naming the variety after his own town. He is sixty-**BENJ. M. SMITH** one years of age, and half of his life has been occupied in strawberry culture. Mr. Smith is an interesting man, and his berry experience given in this book adds much to the value of the work. Page 79.



J. M. SMITH

This gentleman recently died at his home at Green Bay, Wis., distinguished alike for his love of horticulture, business ability, nobility of character and absence of "the least touch of pride, arrogance, vanity or egotism." Born in Morris County, N. J., he removed to Wisconsin in 1854, and **J. M. SMITH** began farming, pursuing his favorite calling with great success. A most striking evidence of his enterprise and thoroughness was that he was able to grow and fruit the old Wilson strawberry years after it was generally given up and pronounced worthless. It did not "run out" on his plantation however it did elsewhere.

This gentleman is well known as an apiarian, editor of "Gleanings in Bee Culture," small fruit grower, and writer and publisher of several interesting and valuable books. Among A. I. ROOT them is an excellent book on Strawberry Culture, by T. B. Terry, and one on Tile Drainage, by W. I. Chamberlain. Besides being a practical man, he is overflowing with enterprise and zeal in whatever good work he engages in. He was born fifty-four years ago near Medina, Ohio, where he now lives. Page 15.



This is one of the sons of J. M. Smith, and inherits his father's business ability, HORACE J. SMITH earnestness, honesty, geniality, and other manly qualities. He furnished me some practical notes in berry culture for this book, which I am sorry did not reach me earlier.

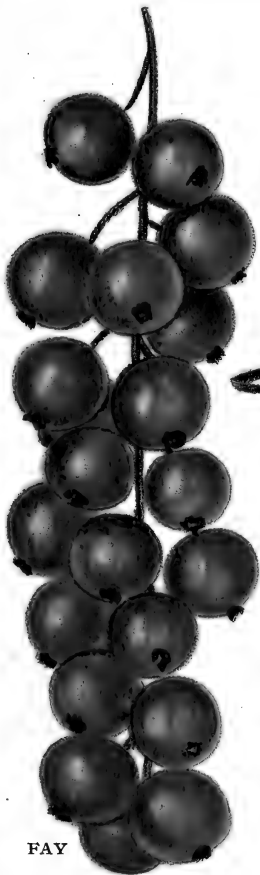
This gentleman was born at Yellow Springs, O., in 1860. He is a self-taught printer, and has some experience as editor, but took up fruit growing at Vineland, N. J., afterwards moving EDW. W. CONE to Menomonee, Wis., eight years ago, making fancy fruit a specialty, devoting considerable attention to seedling strawberries. He contributes freely and wisely to these pages. Page 41.

This individual is the discoverer of the Greenville strawberry, an honorable E. M. BUECHLY distinction that any one may well take satisfaction in. He was born in Ohio, in 1857, near the town of Greenville, where he now dwells.



This is one of the veterans. He began life in Wayne County, N. Y., in 1835, and strawberry growing twelve years later, and has been at it ever since, and expects A. M. PURDY to continue in the business until he quits work here below. Mr. Purdy has been editor and nurseryman as well as fruit grower. He has now (1894) 112 acres of land near Palmyra, N. Y., devoted to fruit growing and trucking. He contributes to this work. Page 87.

E. M. BUECHLY



FAY



FAY



NORTH STAR



VICTORIA

The subject of this sketch was born at Newburgh, N. Y., in 1856; soon after his parents removed to Cornwall, and when old enough he secured a position as foreman with the noted author T. J. DWYER and horticulturist, E. P. Roe. In 1884 he started the "Orange County Nurseries" on a capital of \$200, which now does an immense business, and with its worthy proprietor, enjoys the confidence of the public. Page 90.



This excellent gentleman resides at Irvington, Ind., and is interested in the culture of small fruits. He has been president of the Indiana Hort. Society for eleven SYLVESTER JOHNSON years, and is treasurer of the State Board of Agriculture, worthily filling both positions. He gives his experience in the pages of this book.

This is Hale, who has so much vim, SYLVESTER JOHNSON backed by so much good sense, honesty, and amiability, that his fame is as wide as the continent and as permanent as the hills. He is, perhaps, best known as a successful Connecticut and Georgia peach grower, but the Hale Bros.' J. H. HALE nursery of berry plants, at South Glastonbury, Conn., ranks second to none. I acknowledge my indebtedness to Mr. Hale for the most generous and intelligent help in securing specimens for illustrating this book, and for his admirable and copious notes on berry growing. Page 13.

This child of New England was born but twenty-eight years ago, a native of Connecticut, and has been actively engaged in the strawberry business twenty years—so he began early. He is a vigorous down-east hustler. He is secretary of the Conn. Pomological Society. He has been a member of the State Legislature, where he made a fine record, and is none the worse for that experience. Berry notes from his pen will be found in this book.



GEO. S. BUTLER

Here is another youngster who yet is quite a veteran in experience with berries, and has won marked success as a small fruit A. G. SHARP farmer. From less than 100 acres of hilly, New England farm land he has sold in one year \$3,687.76 of produce, of which nearly all came from berries. His experience notes will be found in this book. Page 41.



CHARLES M. HOVEY

This venerable personage died at Cambridge, Mass., in September, 1887. He was a pioneer in horticulture and a leader all his life, compatriot with A. J. Downing, Charles Downing, Dr. John A. Warder and CHARLES M. HOVEY Marshall P. Wilder. He is given place in this work, especially, because he originated the famous Hovey seedling strawberry, which, at the time, and for many years after, was deemed a great acquisition to the berry world.

I was very desirous of securing the portrait of this distinguished Canadian gentleman for my book, and did so with much coaxing. Mr. Little was born in Ireland in 1815, emigrated to Ontario, Canada, in 1843, so he may be called one of the veterans. JOHN LITTLE He possesses an ardent love for plants and trees, and has devoted many years to the production of seedling strawberries, several of which have proven valuable, among others Saunders, Crawford and Woolverton. I know of no person noted in any department of horticulture who enjoys greater esteem than this modest Christian gentleman, who is now in his eighty-first year. Page 78.

I have here an indefatigable small fruit grower who has made the strawberry a specialty, and has had remarkable success in growing fine fruit for market. His EDWARD T. INGRAM name has lately come into prominence as the originator of the new "Brandywine," which promises to be a very valuable late market variety. Mr. Ingram is a Chester County, Pa., farmer, which in itself is no mean recommendation.



EDWARD T. INGRAM

"The growing of small fruits has been to me a source of income and has paid my debts, and also built for us a nice house;" so writes this estimable gentleman, who lives at North EUGENE WILLETT Collins, N. Y., not far from Buffalo. The first work he ever remembers to have done was picking strawberries for an uncle at a cent a quart, and he has been interested in berry growing ever since. He is in the forty-first year of his age. He is a successful and interesting man. Page 23.

One of the substantial fruit and fruit-plant growers of Michigan, a native, though, of the Berkshire Hills of New England, where he was born in 1849. His O. A. E. BALDWIN father dying, he returned to the old place, and in 1856 removed to Michigan, where he has engaged in berry growing largely, and lately in supplying plants, in which he has a very large trade.



O. A. E. BALDWIN

This gentleman's name has become widely and pleasantly familiar from his monthly berry bulletins, which appear in the agricultural press of the country. He went to Wisconsin in 1856; is now president of the State Hort. Society; and M. A. THAYER "Thayer Fruit Farms" are said to be producers of more berries and berry plants than any other concern or individual in the northwest. Over 100 acres are devoted to berries alone. Located at Sparta, a city which Mr. Thayer once presided over as mayor. Page 83.

It would not do to omit this gentleman from any galaxy of portraits of small fruit men, for none are more conspicuous than he. It was in 1878 that he took the first steps in the establishment of the celebrated J. T. LOVETT Monmouth Nurseries, at Little Silver, N. J., and now the business done there is simply immense. He makes small fruits a specialty, and his "Guide" is one of the most attractive publications of the kind sent out to the public.



J. T. LOVETT

This gentleman is an Ohio man born in 1863 on the farm now used by him for a nursery near the town of Bridgeport. He E. W REID has already won distinguished success in the nursery business. He is the introducer of the Timbrell straw berry, and the author of many valuable contributions to the rural press, and furnishes some excellent notes for this book Page 35.



M. CRAWFORD

This is one of the best known strawberry propagators and culturists in the country, living at Cuyahoga Falls, O. He is of Scotch-Irish parentage, born July 5, M. CRAWFORD 1839, and has been growing strawberries thirty-seven years. Few have done more to introduce new and desirable varieties of berries than Mr Crawford, and he enjoys the confidence of a vast multitude of patrons

This live Ohio gentleman, who contributes so intelligently to the interest of this book, was born near Waterville, O., in 1855. near where he now farms. He is ardently devoted to horticulture, is secretary of the Ohio State W. W. FARNSWORTH Hort. Society and has large orchards, consisting of 2,800 pear trees, 1,500 peach, 300 cherry, 300 apple, 1,500 plums, besides 24 acres of berries. He has abundant faith in the business, and expects to go right ahead on this line. Page 40.

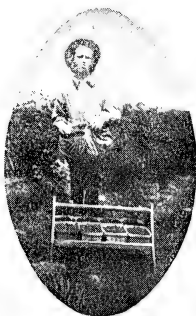
This young gentleman is getting a good start, considering his name now is widely known as a berry man, while yet he is only twenty-eight years of age. He exhibited sixty-seven varieties of strawberries at the World's L. J. FARMER Fair, and received the highest award for largest and finest display. He was born at Pulaski, N. Y., and still lives there, and carries on the nursery business. He is the author of a little work on the strawberry, which does great credit to him, being replete with practical information on the subject.



L. J. FARMER

This is a Pennsylvanian transferred to Kansas soil, where he is prominent in horticultural circles and greatly interested in DR. J. STAYMAN berries. This modest, earnest, true gentleman resides at Leavenworth, and though well up into the seventies keeps up his interest in affairs, especially those relating to horticulture. Page 46.

This gentleman is a New Yorker by birth, born in 1828, removing to Wisconsin in 1835: spent three years in California, from 1849, and then located at Janesville, Wis., where he engaged GEO. J. KELLOGG in the nursery business, which is still carried on, two sons helping him. This excellent firm make strawberries and roses specialties, and conduct a large and prosperous business. Admirable advice is contributed to this book from Mr. Kellogg's ready pen. Page 49.



CHAPTER XXVI.

A LIST OF DON'TS.

Don't give up.—TIM.

IN berry culture, as in many other things, it is nearly as important to know what not to do as what to do, and how to do it; therefore I have brought together a large number of Don'ts, which I think will be appreciated all around,

A M. PURDY Don't discard old reliable sorts for untried new ones. Don't build too many air castles N. Y.

G S BUTLER Don't set out more than you can care for and fertilize. Conn.

Don't wait until the plants are in bloom before setting them in the spring. Don't let layer plants, set in the spring, fruit that season. Don't expect the pistillate varieties to bear alone. Don't hope for as good results from one variety as from three or more. Don't expect a berry to be early, productive, large, firm, handsome, of splendid color and of the best flavor. N. Y.

Don't set plants until ground is fine and firm. Don't plant a large acreage until you have had an apprenticeship on a smaller scale. Don't be afraid to fill the baskets chuck full. Don't cultivate deep. Don't let plants stand too thick in the rows. O.

Don't be too sure you have the best varieties for your soil and climate. Don't let your beds get weedy during haying and harvesting. Don't let the rows grow entirely together, keep a path for pickers. N. Y.

BENJ. M. SMITH Don't grow many sorts of strawberries. Mass.

Don't set out more than you can take care of well. Don't be afraid to try the new kinds; a few of each cost but little, and you may find one that is just suited to your locality and pay you big. N. H.

A. P. SAMPSON Don't have many kinds at a time. Mass.

Don't let dry winds blow on the roots when setting. Don't
H. S. TIMBRELL hoe too deep close to the plants. Don't put
all the big berries on the top of the basket. Don't put in any
poor berries. Don't use any old, dirty baskets. N. Y.

Don't be afraid to do your share of missionary work in the
W. C. WILSON cause. Buy some of the new varieties. Don't
imagine you know all there is to learn in strawberry culture. Ill.

Don't plant too heavy of any sort until you have tested it in a
small way first. Don't expect to get the best prices for your ber-
ries if you put all the small ones in the bottom of the basket.
CHARLES WRIGHT Don't think the country is overstocked with
strawberries or that yours will glut the market. By all means
don't delay planting a strawberry patch next spring, for family,
if not for market. Del.

WM. D. BARNES Don't set on sod land. Don't cultivate or hoe
deeply. Don't cover the crown of the plant. N. Y.

Don't delay planting until hot weather. Don't set common
plants from old patches even as a gift. Don't spend large
W. F. ALLEN, JR. amounts for new varieties, but buy a few
from some reliable nursery and try them for yourself. Don't
watch for the grass and weeds to start before beginning to culti-
vate. Md.

Don't think because one has cleared \$500 on an acre of straw-
A. G. SHARP berries this year that you can do the same next
year. Mass.

BENJ. BUCKMAN Don't expect to learn it all in one lifetime. Ill.

Don't let too many runners grow. Don't depend on any one
A. W. SLAYMAKER variety, and don't fail to try a few of the
promising new ones, so as to know which suits your soil and
conditions. Don't try to sell little, knotty or imperfect berries.
Del.

Don't let the weeds grow ; hoe if not weedy. Don't ask the
GEO. A. DAVIS pickers to pick larger quarts than you give
your customers. N. Y.

ANDREW WILLSON Don't let too many plants grow. Don't remove the mulch in the spring—loosen it. O.

Don't plant too deep. Don't allow the crown to be covered in working. Don't allow the plants to get on a ridge. Don't let E. W. REID runners set until July. Don't plant too many acres. A less amount properly cared for will pay a better profit. Don't use land that is not well drained. O.

Don't allow weeds to smother the plants. Don't trust wholly GEO. F. BEEDE to nature in placing runners. Don't destroy last pickings when picking first berries. Keep the plants upright and in good shape. N. H.

Don't leave the runners to be tossed about in the wind. Press each one lightly into the soil and fasten with a couple of EDW. W. CONE stakes, a stone or a clod of earth. The first runners that start make the best plants for next year's fruiting. Don't neglect to plant a generous test plot each year. Wis.

H. E. MCKAY Don't think you know it all. Don't call your merchant a thief when he cannot get big prices. Miss.

Don't let the pickers handle two berries at a time with one R. D. MCGEEHAN hand. Don't ridge the ground up in rows when cultivating; keep the ground level as possible. Ia.

URIAH HAIR & SONS The don'ts are all summed up in the following: Don't neglect to be thorough. N. Y.

DR. J. STAYMAN Don't put off your work until to-morrow if it can be done to-day. Kan.

Z. T. RUSSELL Don't use boxes the second time, but always have them bright and new. Mo.

WM. HOOVER Don't let the berry patch go without cultivating more than one week. Col.

E. M. BUECHLY Don't hire too cheap a class of pickers, as it pays to pick with care. O.

Don't rest satisfied until you can grow more and better straw-J. H. HALE berries to the rod than any other fellow in the neighborhood, and then—don't fail to tell your neighbors how it is done, so they can go and do likewise. Conn.

GEO. J. KELLOGG Don't plant by a line. If you use one, walk it down, and plant in the tracks. A corn marker makes good rows. Wis.

J. C. EVANS Don't allow your pickers to talk while picking. Mo.

JOHN LITTLE Don't sell old plants under new names. Can.

Don't let the chickens scratch the manure off the plants.
ROBT. H. GILLIN Don't think you can raise a crop of weeds and strawberries. Don't let your berries get too ripe when you ship them to market. Don't rake the manure off in the spring. Pa.

Don't get the strawberry fever unless you get enough to last twelve months in a year. Don't expect much from a loose, sandy E. T. INGRAM soil without a harder subsoil. Don't try to learn it all by your own experience. Don't expect all varieties to do as well for you as for some one else. Don't condemn a variety unless you know you have the one you ordered. Pa.

Don't let your berries get too ripe on the vines, or a few over-ripe ones will spoil the rest. Don't let berries stand in the sun HORACE J. SMITH after being picked. Don't let the pickers tread or roll on the vines, nor play base ball. Don't leave a bed too long, but set some new vines every year. Don't wait till picking time before making up cases and boxes for the season. Wis.

Don't plant on undrained land, on foul land, on too light T. G. TICE land, on too much land, on too poor land. Don't use too little fertilizer, too little labor, too little brains. Don't neglect underdraining. N. Y.

CHAPTER XXVII.

AFTERMATH.

Not a bit of use in expecting to get a good crop of berries from feeble plants. Make the plants as big and strong as you can, with broad leaves.—TIM.

SHAKESPEARE states that strawberries were grown in gardens in the time of Richard III, but were a rarity. They were among the street cries of London over 400 years ago.

The great Linnæus is reported to have cured himself of the gout by partaking freely of strawberries—a delightfully æsthetic cure, and a most flattering testimonial to the efficacy of the dainty scarlet fruit.

Nicholas Longworth, of Ohio, was the first to discover the cause of barrenness, which stood in the way of successful strawberry culture sixty years ago. The sexual difference in plants was not understood before his time, and failure to produce fruit was the customary thing. Only a little over forty years ago the discovery was made that it was best to keep the sexes in separate rows. Who made the discovery?

Do not overlook the importance of study before going deeply into berry culture; and pay frequent visits to neighbors who have had experience in this line. See what they do, hear what they say, learn all you can from them.

Manure liberally—little and often—say at intervals of a month through the first summer. Sprinkle along the rows nitrate of soda, bone meal and muriate of potash or chicken manure and ashes, or any good commercial fertilizer, and do not be afraid of 1,000 pounds per acre for the year, in addition to any other manure that may have been applied at the first preparation of the ground, or as a winter mulch.

Fruiting strawberries in hills is generally not as successful as in matted rows. There are several reasons for this: when grown in hills, in ground that is not level, the water washes the loose soil from around the hills, leaving the plants high up, and liable to suffer from drought. The fruit should be well shaded from the hot sun, and this is not so well done in hill culture.

Some varieties will stand more neglect than others.

Some varieties are better adapted to hill culture, others do best in matted rows.

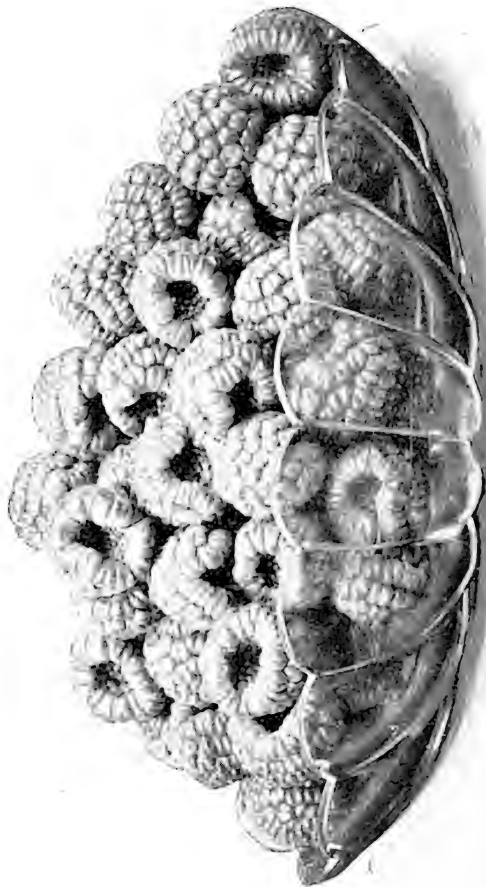
Some varieties should have more room than others.

Some will stand rainy weather at picking time better than others.

Vary the culture to suit the variety.

No use trying to grow foreign varieties. Our American sun is too hot for them.





A DISH OF MILLERS

CHAPTER XXVIII.

THE RASPBERRY.

HAVING pretty fully written about the strawberry, I come now to the other small fruits, but shall devote only a moderate space to them, since I am not so well informed by experience as of the strawberry, and the limit of this work is already nearly reached. What I shall say will be largely what I have

learned from others, and I hope will be none the less useful on that account. I have grown nearly all kinds of small fruits for the family supply, but have always been most interested in the strawberry, and have given it the most careful study; but I believe the culture of the raspberry, gooseberry and currant can be made profitable in many places, and ought to be



undertaken by many farmers who are favorably located as to soil, climate and markets, and who find ordinary cereal farming unprofitable.

The raspberry is of easy culture, a sure cropper, excellent as a table fruit after strawberries are gone, and for canning and preserving it cannot be beat, and sells well in market.

Were I going to set out a raspberry bed I should place the plants in rows four or five feet apart each way, so it could be cultivated with little labor, the black varieties requiring a little more room than the reds. If set in rows one way the canes can be supported by a wire trellis, as shown on next page. The planting is best done in the spring, and the ground should be kept mellow by frequent cultivation up to July, but do not go deep, for the roots of the raspberry are near the surface. Raspberries do well in an orchard where a little shaded, and prefer a loamy to a sandy soil.

Annually the ground should be fertilized with well rotted stable manure, and some complete commercial fertilizer in addition, at the rate of 1,000 pounds per acre. It is recommended

by some to plant raspberries in rows seven feet apart, mulch on each side of the rows for two feet, and cultivate the two foot strips in the centre, to keep the soil loose, putting the mulch on in June. Four or five bearing canes are enough to let stand in the hill, which, after fruiting, should be cut away. The new succulent canes of the red raspberry, which come up in the spring, are the ones which bear fruit the following year. These, in rich ground, will grow too tall, and it is best to make them stocky and spreading, by clipping or pinching off the tops when they get about two feet high, and all the canes of weak growth should not be allowed to grow at all. Never trim in the fall. Some growers advise never to trim the raspberry after the first year during the growing season, at any rate, if done at all, it should be done early.



Some prefer to plant a trellis of wire along the rows and fasten the canes thereto, and where regard is had to neatness, it is well. Two trellises with the row between is best ;

then tying will not be needed

Get plants certainly true to name, and remember that varieties are apt to get mixed in some nurseries.

The raspberry bed will be inclined to run out after four or five years, unless well taken care of, but can be renewed by cutting all of the canes off to the ground in early spring, and burning, loosening up the ground and thinning the plants, then an application of a forkful of rich manure over each plant will do the business.

Black-cap raspberries root from the tips of the canes, and the new plants thus formed become the bearing canes next year, so that it is important to give attention at the right season, to see that the tips are rooted, for, if this be disregarded, there will be but little fruit, and the bed will soon run out.

RED VARIETIES.

TURNER.—Plant a very strong grower, noted for hardiness, and free from diseases ; fruit large, soft, juicy and sweet, pleasant to the taste, but not of high quality ; a week or ten days earlier than the Cuthbert ; too soft for market, best for light soils and cold climates, suckers much.

GOLDEN QUEEN.—Very similar to the Cuthbert, except that it is yellow.

CUTHBERT.—This is the best red raspberry. It is a great bearer, the plant is healthy and vigorous, the quality of fruit is fair, it is of large size, late in ripening, a good market berry, being firm enough to ship considerable distances, and it will stand severe winter weather. The fruit is reddish purple, and attractive looking. It is the main market berry in many sections, and for the table it suits the average taste. In fact, the Cuthbert takes the lead among the reds, and may safely be selected for the family table as well as for market. Shown on colored Plate XIV.

CAROLINE.—A good home berry, being an excellent table fruit.

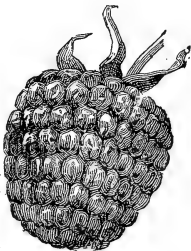
LOUDON.—Another new variety that is well spoken of. The fruit is shaped like the Cuthbert, but not quite as long. The color is bright, showy red, of excellent quality, and believed to be hardy; berry ripens late. Hale says it is sweeter than Cuthbert. Shown on colored Plate XIV.

SHAFFER.—A strong grower; hardy; berry, very large; dull purple, of sprightly flavor; ripens with Cuthbert; better adapted to the south than the north. The new Columbia is very like the Shaffer.

MARLBORO.—This is a fine berry also; a little earlier than the Cuthbert; larger, softer, and requires more careful culture than the Cuthbert. A fine family berry.

THOMPSON'S EARLY PROLIFIC.—A good, early berry; productive; berries small size, but crumble easily; of a bright crimson color and of fine quality. Hansell is another early berry, firm and of bright color, but a shy bearer.

ROYAL CHURCH.—This is a new variety, much praised, with some good qualities, but the berry falls to pieces readily. Shown on colored Plate XIV.



MARLBORO

MILLER.—A new variety found in Delaware, which finds great favor there. Of good quality, a good shipper, ripens early, and is very prolific. Shown on page 116.

BLACK VARIETIES.

I shall not minutely describe these for want of space. Gregg is one of the best market sorts, and is more extensively grown for that purpose than any other. Johnson's Sweet is a good berry, but the bed dies out and has to be renewed every three or four years. Kansas is a newer variety of great value, both for home use and for market. Hillborn is a good early. Lovett much praised by some. Palmer is similar to Kansas, early and good. Older is a variety of high quality, and should have general trial. Gregg, Kansas and Older are shown on colored Plate XV; Palmer and Lovett on colored Plate XVI.



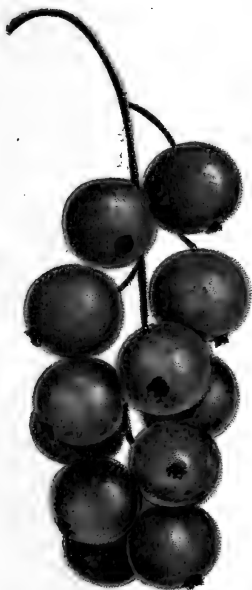
It ought to be understood that all plantations of black raspberries will deteriorate rapidly, and ought to be removed and new plantings made after a few years' bearing. Plantings should be made early in the spring.

New plants of the black raspberry are started in September by covering the tips with moist soil, two or three inches deep, and allowing them to remain until spring.

M. A. Thayer sums up the black-caps in this way: In black-caps the Ohio, Palmer, Progress and Older for early, and Nemeha and Gregg for late. Marlboro and Cuthbert, for reds, are the best well tested varieties. Shaffer for quality and productiveness, unexcelled for family use.

The value of a berry often depends on location and cultivation. Many new varieties, made promising by extra cultivation, are of no value with ordinary care, hence, the large list of high-priced novelties that come and go in a single season. As poor berries improve with high culture, so good deteriorate with neglect. Best berries are produced only by best culture.

The raspberry has two troublesome diseases: the black-cap orange rust and anthracnose. The former is to be dreaded, from the fact that the only known remedy for it is to dig up all infested

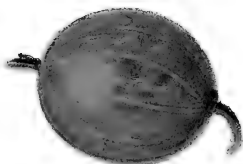


CHERRY

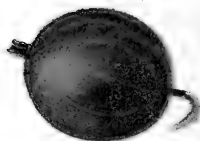


WHITE GRAPE

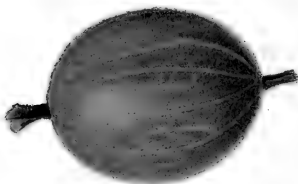
PLATE XX.



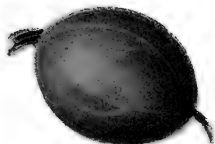
COLUMBUS



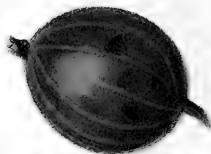
HOUGHTON



CHAUTAUQUA



SMITH'S IMPROVED



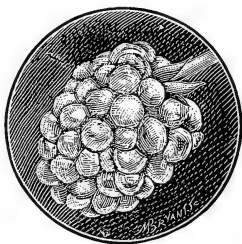
DOWNING

plants and burn them. The anthracnose can probably be prevented by spraying with Bordeaux mixture. I have not space to treat of insect enemies of the raspberry.

THE BLACKBERRY.

The blackberry requires culture very similar to the red raspberries, and success is often obtained by growing this fruit for market purposes. Our fruit growers still keep to the old reliables: Snyder, Dorchester, Kittatinny, Lawton and Wilson's Early. But newer ones, such as Wilson Jr., Minnewaski, Eldorado, Ohmer, Ancient Briton, and Early Harvest are being planted and, where they have fruited, have given satisfaction. The Snyder is esteemed where an extra hardy one is wanted. It is sweet to the core, and very prolific, hence is much planted. Ancient Briton is recommended for cold climates.

The country owes a large debt of gratitude to Mr. Luther Burbank, of California, for his long and successful endeavor to produce new flowers and fruits; and among his productions are a number of beautiful blackberries, two of which, one black, on next page, the other white, shown here, the engraving being taken, by permission, from his catalogue.

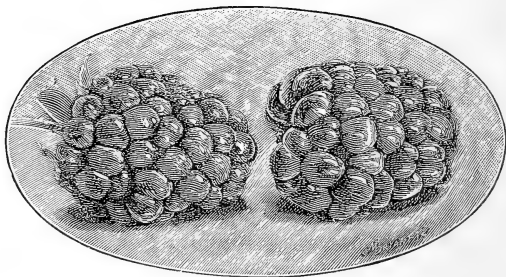


Mr. J. H. Hale tells of his experiments in thinning blackberries. By cutting off half of the blossoms with shears, which requires little time and expense, he has greatly increased the size of the Snyder. This is otherwise sure to overbear and produce small berries; yet it is one of the most reliable of our standard varieties. Minnewaski, in his estimation, is the best of all blackberries, hardy, large, and of good quality. He is opposed to planting blackberries in hedge rows, but prefers to plant eight feet apart each way, and to cultivate both ways.

It is best to prune the blackberry late in the spring, when the fruit buds can be distinguished.

Dewberries are of but little worth, and I would not recommend them to be planted. They have one merit, that of earliness, coming before blackberries. They may be tied to high

stakes, kept well headed in, for, if allowed to spread on the ground, the fruit gets soiled and comes to nothing.



CHAPTER XXIX.

CURRENTS AND GOOSEBERRIES.

Give them plenty of manure.—TIM.

THE currant is a favorite with nearly everybody, and every garden should have at least a few plants, and market gardeners find profit in growing this fruit for sale. It will thrive under nearly every condition, but prefers to be a little in the shade, and the soil should be deep, moist and cool. Clay soil, with good drainage, suits the currant excellently well. It is a good plan to mulch around the bushes with straw or green clover, cut in full blossom, through the heats of summer. It is the practice of some to shade the currant with grapevines, alternating the rows, and this answers a good purpose.

Where possible, it is well to plant five feet each way, using 1,742 plants to the acre. Do not stint the manure. Currants require extra heavy manuring, in order to get berries that will command the best price. Not only should the soil be in excellent tilth at the time of planting, but it should be top-dressed yearly (every autumn or early winter), with pig or cow manure. There are no fruits that will respond more quickly to good treatment than these. Cultivate often and keep all grass and weeds down. As soon as the leaves fall, the pruning may be done. One-third of the current year's growth should be removed, and where the wood is crowded, it should be thinned. As the bush attains age, two-thirds of the present year's growth is not too much to be removed.

The currant does not come true from seed, and new plants are propagated by layering and by cuttings. A cool, moist soil is necessary for starting cuttings, and shade is essential also. The cuttings are made about seven inches long, from new growth the early part of September. Set these in rows three feet apart and five inches in the rows. The soil should be firmly impacted around the cuttings, which should be buried, slightly leaning, with about an inch out of the ground. They will soon throw out roots, and will be ready to start in the spring into vigorous growth.

Layering is done in the spring, by bending down vigorous young branches, and burying them in the earth, leaving the tops out; after rooting, in the fall, the new plants may be severed from the parent stem, and the next spring may be transplanted.

The stem of the currant is subject to the attacks of two kinds of borers; the remedy for both is to cut out and burn all infected branches. Their work is discovered by the shriveled appearance, after the leaves have fallen in the fall. Sometimes eight or ten borers are found in one stem.

The insects attacking the leaves of the currant are the imported and native currant worms, and the currant span worm. There are numerous others that commit depredations of minor importance, but these three are all that are likely to be troublesome. The first two can be kept in subjection by the use of powdered hellebore, in the proportion of an ounce of hellebore to a pailful of water, sprinkled or sprayed on the bushes at their first appearance, or hellebore and flour, in equal bulk, dusted on when the bushes are wet are effective. For the span worm, if hellebore be used, the liquid should be made three times the usual strength.

Aphides, or plant lice, sometimes attack the leaves; these are destroyed by spraying with tobacco tea, or by dipping the twigs into a pail containing the same. Spraying with the Bordeaux mixture will prevent damage by the fungi, which causes the leaves to drop prematurely in the fall. It is best to use this mixture freely on all plantations of currants where the foliage drops early.

VARIETIES OF CURRANTS.

RED DUTCH.—This is commonly cultivated and best known, bright red in color and small in size. It will hang on the bush a long time after getting ripe without being seriously injured. The fruit seldom brings the highest price on account of its rather small size, but if severely pruned and highly manured it is greatly improved in this respect.

VICTORIA.—One of the latest varieties in time of ripening. Very satisfactory in every way, and especially valuable for marketing. Fruit, red and of large size, and remarkably free from attacks of borers. Shown on colored Plate VIII.

CHERRY AND VERSAILLES.—These are much alike, being red in color and large in size. The bunches of Versailles are longer than those of Cherry. Cherry is shown on colored Plate XIX.

FAY'S PROLIFIC.—This is a cross between Cherry and Victoria; of large size, dark red in color, of fine flavor and very prolific, the bunches being very large. The plant, however, is somewhat tender and not as vigorous as the others. A bunch and single berry is shown on colored Plate XVII.

NORTH STAR.—This is one of the newer varieties, and is recommended for its robust habit and hardiness in cold latitudes. The berry is small. Shown on colored Plate XVII.

President Wilder is a seedling of Versailles, and said to be better, of excellent quality and very productive.

Prince Albert is valued for its lateness and great productiveness, but the quality is inferior. Crandall is undesirable, the berries ripening at different times.

White Grape is the best of the white varieties, and is sweeter and more desirable for table use than any before mentioned. It is prolific and very satisfactory in the home garden. But white currants seldom bring as good a price in the markets as the red kinds. Shown on colored Plate XIX.

White Imperial is a new variety, and said to be sweeter than white grape—sweet enough to eat without sugar. White Dutch is an old reliable white variety.

The black currant is seldom eaten from the bush, but for pies, jellies and preserves it is very much esteemed. Shown on colored Plate XVI.

THE GOOSEBERRY.

The culture of the gooseberry is so similar in all respects to that of the currant that I do not deem it necessary to go into special details. Its general requirements are the same, its insect and fungous enemies are similar, and are to be overcome the same way. Some of the varieties are subject to mildew, which is very injurious; this is treated by the sprayer to potassium sulphide, one-half ounce to a gallon of water. The sulphide is best dissolved by hot water. Some varieties are more subject to mildew than others, notably those of foreign origin.

It is more difficult to propagate the gooseberry than the currant by cuttings, so layering is usually resorted to. The layers are put down in June, and are found slightly rooted in the autumn. The bushes should be pruned to an open head, to allow free access of air, which checks mildew. The ground should be well mulched with straw during hot, dry weather.

VARIETIES OF GOOSEBERRIES.

We show on colored Plate XX five varieties true to life—Chautauqua, Columbus, Houghton, Downing and Smith's Improved. These are all native sorts, and are recommended. Columbus is of the largest size, late in ripening, and is very fruitful and free from mildew. Industry is another large variety, reddish, of fine quality, but somewhat liable to mildew, and overbears, requiring the fruit to be thinned. Whitesmith and Crown Bob are two of the best foreign sorts, the former being of very superior quality. Red Jacket is valuable. Downing is larger than Houghton, and may be classed as reliable and one of the best.

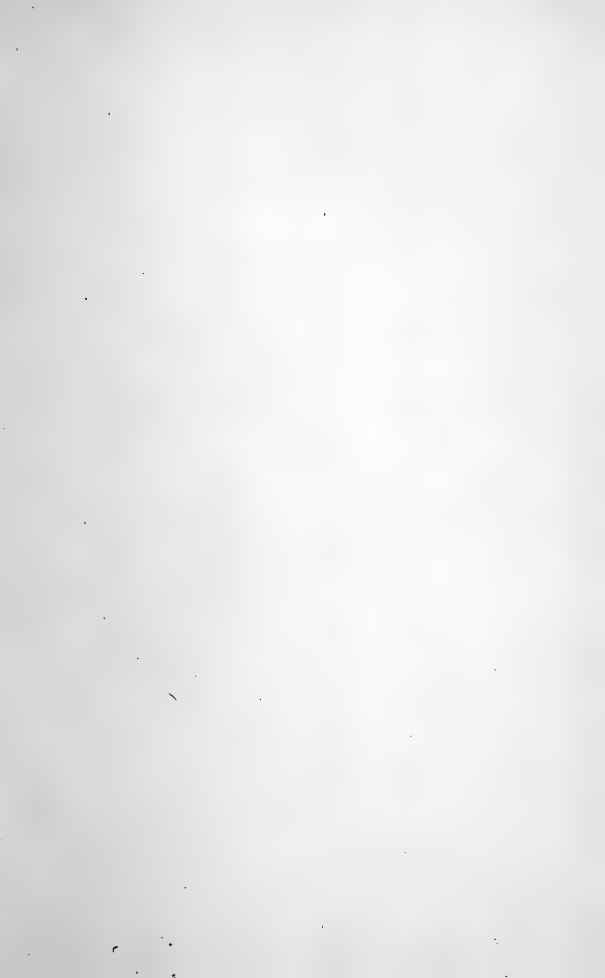


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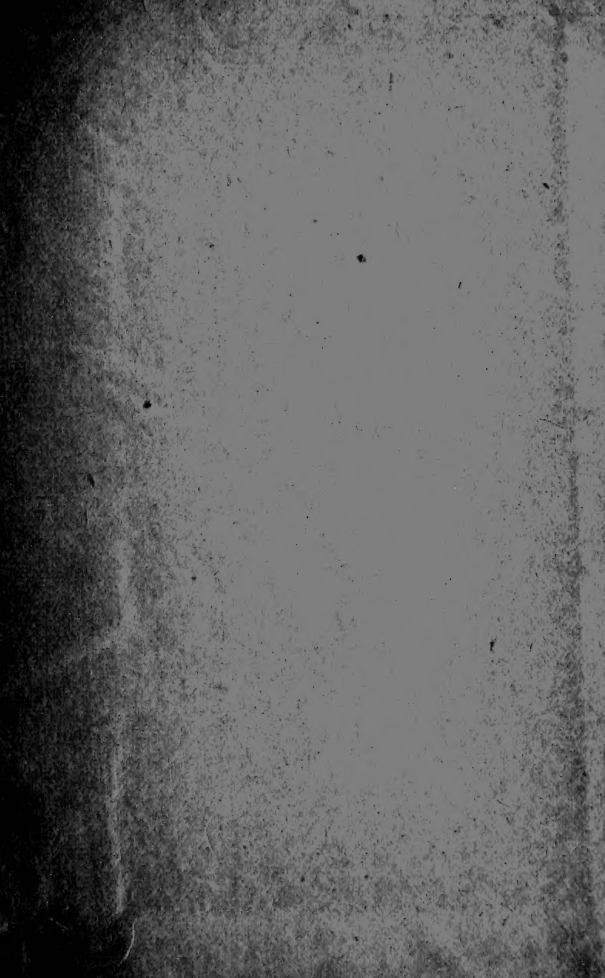
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